Measurement of goal perspectives in the physical domain

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Chapter 2

Measurement of Goal Perspectives in the Physical Domain

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Over the past 10 years, sport research steeped in social cognitive models of motivation that emphasize the significance of personal goals has burgeoned. Central to this growth has been the development of sport-related measures to assess the constructs critical to such theoretical frameworks. In the first part of this chapter, the major tenets of the goal perspective approach to motivation are provided and differences as well as commonalities between the positions taken by major achievement goal theorists are delineated. To foster clarity in the central concepts, the distinctions between the conceptual definitions of dispositional, situational, and state goal perspectives are presented. The chapter will then review the psychometric characteristics and conceptual underpinnings of measures of dispositional goal orientations and perceptions of situationally induced *task and ego goal perspectives* in the sport domain. Assessments of achievement goals as applied to the context of physical education will also be critically analyzed. We conclude with suggestions for future work concerning the measurement of goal perspectives and, in particular, highlight recent efforts to assess task and ego goal states in the physical domain.

THEORETICAL RATIONALE AND DEFINITION OF CONSTRUCTS

Nicholls, Maehr, Dweck, Ames: Distinctions and Similarities

Research on goal perspectives in sport and exercise settings has been grounded in the achievement goal theories proffered by Nicholls (1984, 1989, 1992), Dweck (1986; Dweck & Elliott, 1993; Dweck & Leggett, 1988), Maehr (Maehr & Braskamp, 1986; Maehr & Nicholls, 1980), and Ames (1984, 1992a, 1992b). Taken collectively, their conceptual approaches to the study of achievement motivation hold several tenets in common. Each of these educational psychologists agrees that a major focus in achievement settings is to demonstrate competence, and thus, the salience of perceptions of ability is a central feature of achievement strivings. They concur that (at least) two major goal perspectives, one being self-referenced or mastery focused and the other comparative or normatively referenced, are operating in achievement situations. These scholars further emphasize that variations in goal perspectives are fundamental to observed differences in people's achievement-related cognitions, affect, and behavior.

The body of motivation research cultivated by Nicholls, Maehr, Dweck, and Ames can also be distinguished in a number of important ways. Maehr worked initially with Nicholls (Maehr & Nicholls, 1980) to propose that individuals differ in their personal definitions of success/failure, which are based on the perceptions that one has (or has not) demonstrated a personally meaningful attribute (such as showing that one is a hard worker or is competent). Maehr and Nicholls (1980) specifically challenged the prevailing tendency in achievement motivation research (e.g., studies testing Weiner's attributional model of achievement motvation and emotion; Weiner, 1985) to define success and failure experiences with respect to objective criteria such as winning/losing or high versus poor grades. They also suggested that three achievement orientations or perspectives on defining achievement (ability, mastery, and social approval) might be recognized worldwide, albeit with different national or ethnic group emphases.

Nicholls (1984, 1989) extended and qualified the position of Maehr and Nicholls (1980) by proposing (a) perceptions of success and failure are linked to peoples' perceptions of

whether they demonstrated high or low ability; (b) variations in subjective definitions of success/failure emanate from the conception of ability that is adopted, that is, whether ability is conceived in a task- and/or ego-involved manner; (c) the conception of ability evoked is impacted by developmental change as well as dispositional and situational factors; and (d) "although there is much more to achievement-related cognition than conceptions of the nature of ability" (Nicholls, 1992), individuals' conceptions *and* perceptions of their current capacity are most relevant to the prediction of achievement patterns (p. 42).

Nicholls (1989) suggests that situations can be characterized as more or less task and/or ego involving. Environments that are marked by interpersonal competition, the public evaluation of skills, normatively based feedback, and/or the testing of an important attribute are held to be ego involving. In contrast, situations that focus on the learning process, personal improvement, and effortful involvement over outcome are considered task involving.

Most of Nicholls' (1989) work, however, examined the motivation-related correlates of orthogonal task and ego orientations (or "individual differences in proneness to the different types of involvement," p. 95). In the former case, perceived ability is self-referenced and emphasis is placed on task mastery, effort investment, and development of one's skills or increased insight. When ego orientation prevails, individuals are concerned with demonstrating normatively referenced high ability and, thus, perceive a successful event when they think that they have surpassed others or performed equally with less effort (i.e., shown that they possess superior ability).

Dweck (1986; Dweck & Leggett, 1988; Elliott & Dweck, 1988), considers goal perspectives to be bipolar and underpinned by beliefs about the flexibility or stability of intelligence (i.e., individual differences in incremental versus entity theories of intelligence). It should be emphasized that Dweck uses the term conceptions of ability (as do others who have drawn from her work; e.g., Jourden, Bandura & Banfield, 1991) with a different meaning than that held by Nicholls. In Dweck's view, people hold concepts of ability that equate ability to either an acquirable personal quality or skill *or* a fixed and inherent aptitude. On the other hand, Nicholls (1989; Nicholls & Miller, 1984) argues that a task conception of ability represents a view in which effort and ability are undifferentiated. An ego conception of ability, in contrast, indicates that ability is differentiated from effort and viewed as a capacity. Thus, Nicholls' approach to conceptions of ability does *not* specifically relate to whether individuals perceive that ability can be changed, but whether one's ability is viewed as being influenced by the degree of effort one exerts.

Typically involving an experimental laboratory paradigm, the work of Dweck and her colleagues has emphasized the effect of "learning" versus "performance" goals on motivational processes in the cognitive domain. The two goals have been found to predict two distinct behavioral patterns, particularly in response to failure. Dweck (1986) terms these respective patterns mastery oriented and helpless oriented.

Ames (1984; Ames & Archer, 1988) has focused primarily on the antecedents and motivational implications of students' perceptions of their classroom climate. In essence, her efforts have centered on variations in situationally manifested goal perspectives (labelled mastery and ability goals) as perceived to be reflected in the behaviors and direction of teachers and the ways in which they structure their classrooms. This work has laid the basis for intervention studies designed to examine the effect of mastery-based classrooms on students' beliefs, self-perceptions and reported motivation (Ames, 1992a, 1992b).

Individual Differences, Motivational Climate and Goal States

As previously mentioned, Nicholls (1989) suggests that there are dispositional tendencies that predispose individuals to adopt one state or the other. Whether one is in a state of task or ego involvement is assumed to be also influenced by perceptions of the motivational climate (or situationally emphasized goal perspectives) and the person's stage of cognitive development.

Within the existent sport psychology research focused on achievement goals, there has been considerable confusion concerning the distinctions among individual differences in achievement goals, perceptions of the motivational climate, and goal states. In an attempt to clarify these three constructs and move toward greater consistency in the sport goal perspective literature, Duda (1992, 1996) has argued for the adoption of Nicholls' terminology. Her argument concerning the preferred employment of the terms task and ego goals as advocated by Nicholls (1984, 1989, 1992), rather than learning and performance (Dweck & Leggett, 1988) or mastery and ability (Ames, 1992a, 1992b) goals, was based on important conceptual reasons. Duda (1992, 1996) has suggested that, whether applied to goal states, dispositions, or environments, the latter terms seem more conducive to ambiguous usage and obscure definitions.

Specifically, Duda (1992, 1996) has proposed that in physical activity settings such as competitive sport, people vary in their dispositional task and ego orientations. Goal orientations and the perceived motivational climate (or degree to which the environment created by significant others such as coaches, parents, and physical education teachers is deemed task and/or ego involving) impact if an individual is task and/or ego involved while participating in practice/training, an exercise or physical education class, or a competitive event. Thus, task involvement and ego involvement are considered to be reflective of transitory goal states or distinct ways in which we process an activity at any moment of time.

Focus on Task and Ego Goal Perspectives

This chapter will focus on the assessment of task and ego goal perspectives dealing particularly with the measurement of dispositional and perceived situationally manifested goal perspectives. We first overview the available measures of individual differences in goal perspectives or dispositional goal orientations because the majority of research in the physical domain has been in this area. We then outline the developing work on the measurement of perceptions of the situational goal structure or the perceived motivational climate. In each case, the research has evolved from work in the classroom to be first applied to sport and then to the context of physical education. Therefore, our presentation follows this progression.

INDIVIDUAL DIFFERENCES IN GOAL PERSPECTIVES OR ACHIEVEMENT ORIENTATIONS

In studying individual differences in achievement motivation, Maehr and Nicholls (1980) moved from the personality-centered approach of McClelland (1961) and the interactionist approach of Atkinson (1964) to propose a cognitive approach in which motivation would be defined in terms of its purpose or meaning for people. Two complementary approaches were recommended by Maehr and Nicholls. The first approach focused on identifying diverse interpretations of achievement among different cultural groups around the world, and the possibly unique subjective meaning of achievement to individuals within these groups. This would be achieved by asking people for their own views about achievement, starting with their personal conceptions of success and failure. The second approach revolved around the identification of universal classes of achievement behavior that may be recognized worldwide, although with varying cross-cultural emphases. Maehr and Nicholls proposed that ability-oriented motivation, task-oriented motivation, and social approval-oriented motivation would be universal. Some of the early work assessing achievement goals in the athletic domain was based on their proposals for exploring diversity and universality.

Early Work in Sport

In the first study of subjective achievement goals in sport, Ewing (1981) employed the critical incident method, which asks people to provide information about self-selected meaningful personal experiences. Her Achievement Orientation Questionnaire (AOQ) requested subjects to first recall an occasion when they had felt successful in sport and then to rate, on a 5-point Likert scale anchored by Strongly Agree and Strongly Disagree, how their feelings of success corresponded with 15 statements (e.g., "I felt successful when I met the challenge"). Exploratory factor analysis of the responses provided by 452 high school students revealed ability, task, and social approval orientations and an additional intrinsic factor characterized by a feeling of adventure. Internal consistency values for the four factors ranged from .80 to .91, and in gender-specific analyses, ability and social approval factors effectively discriminated between competitors, dropouts, and nonparticipants in high school sport teams. However, as pointed out by Weiss and Chaumeton (1992),

> ... subsequent studies using the AOQ ...have resulted in different factor structures and number of factors than those found by Ewing. In addition, (research) designed specifically to assess the validity and reliability of the AOQ found little evidence of construct, factorial, and predictive validity or test-retest reliability (pp. 66-67).

In a four-phase study carried out in the United Kingdom between 1985 and 1989, Whitehead (1993a) examined the cross-cultural generalizability of the AOQ and revised it in a search for further goal orientations derived from the views of the subjects themselves. In phase I, 890 middle and upper school age adolescents completed a 17-item version of Ewing's instrument and then added their own views of success. Exploratory factor analyses showed that Ewing's (1981) four factors were recognizable, but there were age, gender, cultural, and contextual differences in their composition and behavioral correlates (Whitehead, 1995).

In phase II, the 1,398 statements provided by the first subjects were examined for frequency and diversity of content and a 50-item multiple goals questionnaire was constructed to improve the assessment of existing goal factors and identify additional goal perspectives. This was administered to 1,159 subjects (aged 9 to 16 years), and exploratory factor analyses on age and gender-based subgroups yielded a large number (13-16) of first-order factors. This confirmed the anticipated diversity in perspectives of success and was, thus, consistent with Maehr and Nicholls' (1980) argument but the resulting factors were too varied and complex for theoretical and practical explanations. Consequently, based on the initial work, a five-factor extraction was performed on the data. This revealed the three universal orientations (labelled superiority, task, and social approval) as well as "teamwork" and "breakthrough" factors that were deemed relevant to youth sport settings. In phase III, the teamwork, superiority and breakthrough orientations discriminated between persisters and nonpersisters in a longitudinal study of track and field and rugby football athletes (Whitehead, 1990). Gender-based analyses showed two superiority factors for males.

So in phase IV (Whitehead, 1992), the multiple goals instrument was revised to comprise three pairs of first-order factors: victory and ability (focused on direct and indirect measures of superiority), mastery and breakthrough (focused on personal improvement and experiencing novelty), and social approval and teamwork (focused on pleasing or cooperating with others) and three second-order factors (namely, superiority, personal progress, and adaptation to others). Confirmatory factor analysis for the six-factor model showed an acceptable fit (GFI .94, RMSR .055), but the results indicated a need to redefine the mastery dimension and improve its reliability with younger subjects.

More Recent Sport Work Task and Ego Orientation in Sport Questionnaire (TEOSQ)

Conceptual Framework and Definition of Constructs

As Nicholls was one of the two creators of the Task and Ego Orientation in Sport Questionnaire (J. Duda being the other), it is not surprising that this instrument was designed to assess individual differences in the proneness for task and ego involvement as defined in his theory (Nicholls, 1984, 1989). In his extensive writings, Nicholls (1992) has proffered "...a framework for the study of the nature and development of achievement motivation that encompasses features that are common to academic and sport activities as well as unique to specific activities within each domain" (p. 32).

Nicholls suggests that, in each achievement activity, personal goal orientations will be operating that are equated to "habitual achievement preoccupations." These personal goals or "motivational orientations" reflect individual differences in personal criteria of success (Nicholls, 1992, p. 45). Specifically the

two goal orientations, labelled task and ego orientation, relate to whether an individual is more or less likely to employ an undifferentiated or differentiated concept of ability. These dimensions of personal goals, which were discussed earlier by Asch (1952), have been found to be independent and orthogonal (Nicholls, 1989). According to Nicholls (1989), task orientation "involves the purposes of gaining skill or knowledge and performing one's best" (p. 46). Through the experience of personal improvement, learning and trying, strongly task-oriented individuals achieve a sense of competence and, consequently, feel successful. When an ego orientation prevails, people tend to be preoccupied with their ability and see the personal demonstration of superior competence as fundamental to success. The aim of the TEOSQ was to assess these goal perspectives as so defined.

Source and Selection of Items

Drawing from an existing assessment of dispositional goal perspectives in classroom settings (i.e., the Motivational Orientation Scale; Nicholls, 1989; Nicholls, Patashnick, & Nolen, 1985) and the conceptual definitions of task and ego orientation, Duda and Nicholls (in 1985) worked on the development of an instrument that would measure goal orientations in the athletic realm. The initial version of the TEOSQ had 16 items, with some taken directly from the Motivational Orientation Scale and reworded for the sport setting whereas other items were developed by the authors. The items that would constitute the first version of the TEOSQ were part of a larger collaborative study that was eventually published in 1992 by Duda and Nicholls. Duda examined the psychometric characteristics of the original 16-item questionnaire soon after the 1985 data collection and then used the instrument in subsequent projects appearing in print before the Duda and Nicholls' article (e.g., Duda, 1989).

When completing the TEOSQ, subjects are requested to think of when they felt successful in a particular sport and then indicate their agreement with items reflecting task-oriented (e.g., "I feel successful in sport when I work really hard," "I feel successful in sport when I learn something that is fun to do") or ego-oriented (e.g., "I feel successful in sport when the others can't do as well as me," "I feel successful in sport when I score the most points") criteria. Responses are indicated on a 5-point Likert-type scale with 1 = *strongly disagree* and 5 = *strongly agree*.

The results of initial factor analytic work (and examinations of internal reliabilities and item-total scale correlations) reduced the TEOSQ to its current 13-item form (Duda, 1989; Duda, Olson, & Templin, 1991). One item from the original scale that was discarded was "I feel most successful when I win" as it loaded on both the task and ego dimensions. As pointed out by Duda (1992, 1996), this finding is conceptually and practically informative as it indicates that the competitive outcome can provide information about personal improvement and mastery (which lays the basis for a task-oriented definition of success) as well as the demonstration of superiority (which is fundamental to an ego-oriented definition of success.)

Norms

As shown in Table 1, over 70 published studies have employed the TEOSQ when assessing dispositional goal perspectives. Across the samples represented in this body of research (N = 12,239), the mean for the task orientation scale is 4.08 + .57 and the average value for the ego orientation scale is 2.87 + .81. In 17 studies in which the TEOSQ scores within the same sample are analyzed separately by gender, the mean task and ego orientation scores for males (N = 1,331) are 4.11 ± .49 and 3.05 ± .80, respectively. For female subjects (N = 1,285), mean task and ego orientation values are 4.18 ± .47 and 2.82 ± .78, respectively. In eight studies in which scores have been analyzed separately for under 13 and over 13 year old subjects, means for the younger group are 4.24 ± .58 (task) and 2.65 ± .86 (ego) whereas those for the older group are 4.26 ± .53 (task) and 2.92 ± .94 (ego).

Reliability

Test-retest reliability. The task and ego orientation scales of the TEOSQ have been found to have acceptable test-retest reliability following a 3-week period (r = .68 and .75, respectively; Duda, 1992) and one soccer season (r = .71 and .72, respectively; VanYperen & Duda, 1997). Thus, the TEOSQ seems to measure a dispositional proneness in a consistent manner over time.

Internal consistency. Cronbach's alpha coefficients for a variety of samples (Table 1) have revealed mean internal reliability values over 56 studies of .79 and .81 for the task and ego orientation scales of the TEOSQ, respectively. Reflecting the robustness of the instrument, the high internal reliability of the TEOSQ scales was retained when young basketball camp participants completed the questionnaire with respect to how they think their parents operationalize athletic achievement and their parents completed the measure in terms of personal definitions and perceptions of how their children defined sport success (Duda & Hom, 1993). Thus, the TEOSQ has been found to exhibit acceptable internal consistency.

Validity

Factorial validity. Investigations employing exploratory factor analysis (with oblique and orthogonal rotations) have continuously found support for the predominant two-dimensional structure of the TEOSQ. This pattern has held across samples of youth sport, adolescent and adult sport participants, and college students from the United States (e.g., Duda, 1989; Duda, Chi, Newton, Walling, & Catley, 1994; Duda et al., 1991; White & Duda, 1994) as well as cross-cultural samples (e.g., Duda, Fox, Biddle, & Armstrong, 1992; Duda & Hayashi, this volume; Guivernau & Duda, 1994). We have noticed, however, that when the TEOSQ is employed with non-elite samples (such as recreational sport or physical education students) the task orientation dimension occasionally splits into two factors; that is, one capturing the items related to learning and the other comprised of items focused on trying hard and doing one's best. This three dimensional structure of TEOSQ is not supported when a two factor solution is called for in exploratory factor analysis or when confirmatory factor analysis is employed.

More recent work has employed structural equation modeling techniques to examine the factorial validity of the TEOSQ. Chi and Duda (1995) independently and simultane-

Table 1.
Data From Studies Using the Task and Ego Orientation in Sport Questionnaire in Ascending Order by Age

Authors	Date	Subjects	Age			N			Task			Ego		
			Mean	*SD*	Range	Total	Male	Female	Alpha	Mean	*SD*	Alpha	Mean	*SD*
Dempsey, Kimiciek, & Horn	1993	Schoolchildren			Grades 4–5	71			.52	3.46	.47	.59	3.00	.68
Duda, Fox, Biddle, & Armstrong	1992	UK schoolchildren	10.5	.8		142			.72	3.89	.41	.78	3.34	.80
Weigand & Petrie	1996	Children athletes	10.6	.8		93	43	50		4.22	.54		2.69	.83
White & Duda	1994	Youth athletes	10.8	.5		61	31	30	.86	4.32		.86	2.53	
Duda & Hom	1993	Basketball camp	11.1	2.0	8yr–15yr	77	43	34	>.78	4.36	.57		2.75	.87
Fox, Goudas, Biddle, Duda & Armstrong	1992	UK schoolchildren	11.1			231	115	116		4.16			3.45	
Boyd & Callaghan	1994	Little League baseball	11.3		10–12yr	91	91	0.0	.85	3.90	.78	.84	3.10	1.05
Stephens	1995	Coed soccer athletes	11.4	1.2	9yr–15yr	330	228	102	.80	4.24	.64	.84	2.81	1.00
Stephens & Bredemeier	1996	Female soccer athletes	11.5	1.2	9yr–14yr	212	0.0	212	.81	4.12	.64	.85	2.50	.96
Ebbeck & Becker	1994	Youth soccer players	12.0	1.3	10yr–14yr	166	75	91	.83	4.00	.63	.80	2.70	.82
Goudas, Biddle, & Fox	1994a	UK schoolchildren			12yr–15yr	255			.71	3.88	.51	.80	2.73	.77
Goudas, Biddle, & Fox	1994b	UK schoolchildren			12yr–14yr	85	39	46	.83	3.63	.69	.86	2.17	.69
Biddle & Goudas	1996	UK schoolchildren			13yr–14yr	147			.79	3.98	.72	.78	2.32	.85
Newton & Duda	1993	Elite tennis	12.7			121	80	41	.78	4.11		.81	2.88	
Williams & Gill	1995	School PE	12.7	1.1	11yr–15yr	174	71	103	.84	4.29	.54	.86	2.74	.92
Hall & Kerr	1997	UK junior fencers	12.8	1.6		111	75	36	.86	4.16	.70	.87	3.09	.96
Stephens, Janz, & Mahoney	1996	Adolescents	12.9	1.0	10yr–14yr	114	56	58	.84	4.14	.61	.82	2.94	.85
Guest & White	1996	PE and youth sport	12.9		11yr–15yr	135	63	72		4.30	.75		2.93	1.24
Tank, White, & Wingate	1996	YS leagues	13.0			200	0.0	200	.87	4.02	.74	.76	2.65	.84
Goudas, Biddle, Fox, & Underwood	1995	UK schoolgirls	13.0		12yr–13yr	24	0.0	24	.80	4.13	.49	.86	2.42	.82
Guest, White, Jones, McCaw, & Vogler	In PR	PE and youth sport	13.2	1.1	Grades 6 -9	171	71	100	.80	4.28	.53	.83	2.93	.92
Vlachopoulos Biddle, & Fox	1996	UK schoolchildren	13.2	.9	11yr–15yr	304	248	56	.82	3.7:	.64	.86	2.83	.88
Biddle, Akande, Vlachopoulos, & Fox	1996	Zimbabwe adoles.			12yr–14yr	159			.41	.70			3.70	.92
Walling, Duda, & Crawford	1992	Junior high	13.6	1.3	12yr–15yr	234	125	109	>.70	4.32		>.80	2.57	
Bock, Biddle, & Fox	1997	PE classes PE + recreation PE + competition			11yr–16yr	143 64 211			>.83	3.58 3.61 4.04	.67 .63 .58	>.83 2.57 2.70	2.42 .78 .80	.85
Morgan & Carpenter	1997	UK schoolchildren	14.0	.9	12yr–16yr	118	79	39	.81	3.70	.22	.89	2.87	.25
Andrée & Whitehead	1995	UK track and field	14.0	1.7	10yr–17yr	139	67	71	.76	4.12	.53	.80	3.21	.83
Whitehead & Andrée	1997	UK track and field	14.4	1.6	11yr–17yr	111	51	57	.81	4.32	.47	.83	2.99	.87
Lloyd & Fox	1992	UK Schoolgirls			14yr–15yr	48	0.0	48		4.17	.38		2.68	.89
Weigand & Petrie	1996	Adolescents	14.7	1.2			107	51	58	4.19	.58	2.92	.90	
White, Johnson, & Morgan	1995	Volleyball	14.7	1.4		244	0.0	244	.77	4.5:	.48	.83	2.36	.89
Swain & Harwood	1996	UK youth swimming	14.9	1.8	13yr–18yr	214	110	104		3.83	.57		3.20	.75
Duda & Nicholls	1992	High school	15.1		Grades 10–11	207	99	108	.89	4.1:	.69	.86	3.2:	.83
Walling & Duda	1995	High school PE	15.2	.8		144	66	78	.90	4.17	.68	.90	3.44	.86
White	1996a	Volleyball campers	15.4	1.1	14yr–17yr	204	0.0	204	.77	4.14	.44	.81	2.23	.78
Swain	1996	UK PE class	15.6	1.3	Grade 10	96	96	0.0	.84	3.57	.72	.83	3.12	.80

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Table 1 (cont)

Authors	Date	Subjects	Age			N			Task			Ego		
			Mean	*SD*	Range	Total	Male	Female	Alpha	Mean	*SD*	Alpha	Mean	*SD*
Harwood & Swain	1996	UK youth tennis	14.4	1.6	13yr–17yr	119	60	59		4.30	.44		3.48	.67
White & Duda	1993a	Wheelchair b/ball	15.7			59	52	7	.74	4.26	.50	.75	2.44	.81
White & Zellner	1996	High school	15.9	1.4		65	29	36		4.08	.37		3.48	.92
Williams	1994	HS athletes	15.9	1.2	14yr–18yr	162	74	78	.75	4.31	.49	.85	3.08	.90
White & Duda	1994	High school	16.3	.9		63	33	30	.77	4.24		.87	2.54	
Newton & Ddua	1994	Volleyball	16.2	1.7	14yr–18yr	385	0.0	385	.81	4.38		.86	2.66	
Newton & Duda	1996	Volley/basketball HS IC	16.4		13yr–23yr	202	0.0	202	.83	4.34		.85	2.70	
Gano-Overway & Duda	1996	Track athletes	16.5	1.3	13yr–18yr	171	83	88	.73	4.33	.46	.85	3.39	.89
Duda, Olson, & Templin	1991	Interscholastic	16.6		15yr–18yr	123	56	67	.82	4.34		.80	2.57	
Spray & Biddle	1997	UK PE classes	17.4	.7	16yr–19yr	218	115	103	.71	3.97	.44	.81	2.81	.79
Duda	1989	HS males	17.8		Grades 11–12	321	128		.82	4.28	.47	.89	2.89	.87
		HS females	17.1		Grades 11–12			193	.62	4.45	.80	.65	2.59	.96
Tank & White	1996	HS IS Rec	19.3	2.4		249	136	113	.92	4.22	.63	.86	2.54	.85
Solmon & Boone	1993	Tennis class			College	90				4.28	.45		3.05	.83
Newton & Duda	1995	Tennis class	20.2	1.7	17yr–41yr	107			.73	4.21	.43	.82	2.75	.73
Chi	1994	College skill class	20.3	1.8		270	155	115	>.70	4.43		>.80	3.25	
White & Duda	1994	Intercollegiate	20.2	1.3		62	32	30	.87	4.21		.77	3.01	
White & Zellner	1996a	Intercollegiate	20.1	1.4		91	49	42	.92	4.26	.70	.86	3.00	.76
White & Zellner	1996b	Recreational	20.6	1.1		95	60	35	.92	4.17	.92	.86	3.13	.91
Duda, Chi, Newton Walling, & Catley	1994	Volleyball/basketball skills classes	21.1	2.8		121			.83	4.13	.48	.78	2.43	.68
Duda & White	1992	Intercollegiate skier	21.4	.6		143	81	62	.79	4.13		.81	2.94	
Markland & Wilson	1997	UK weight trainers	23.4	7.0		69	69	0.0	.76	3.81	.60	.88	3.21	1.04
Weigand & Davis	1996	UK amateur soccer	24.9			115	115	0.0		3.75	.53		2.98	.75
Barnes, Page, & McKenna	1997	International. rowers UK/Canada	25.8	4.3		98	56	42	.74	4.24 4.22	.47 .46	.66	3.56 3.38	.56 .67
White & Duda	1994	Recreational	26.0	10.2		51	21	30	.80	4.1:		.91	2.49	
Hall & Finnie	1995	UK distance runners	34.6	12.3		246	166	80	.77	4.48	.54	.88	3.04	1.05
Hayashi & Weiss	1994	Anglo marathon	43.4		Adult	153	113	40	.80	4.05	.50	.73	2.56	.80
Newton & Fry	1996	Senior "Olympians"	65.8	7.3	50yr–80yr	60	34	23	.84	3.99	.47	.81	2.66	.76
Dempsey, Kimiciek, & Horn	1993	Parents			Adult	69			.60	3.26	.52	.64	2.87	.50
Duda & Hom	1993	Parents			Adult	76	21	55	>.78	4.31	.47	>.78	2.85	.74
TRANSLATIONS														
Balaguer, Castillo, & Tomas	1996	Spanish adolescents	13.1	1.5	11yr–17yr	283	146	13	.78	4.18	.58	.80	2.70	.82
Kim	1995	Korean school sport			12yr–18yr	334	244	90	.73	3.96	.54	.68	3.46	.63
Dorobantu & Biddle		Romanian PE	15.8	.3		145	61	84	.77	3.76	.87	.78	3.11	.99
Papaioannou & Diggelidis	1996	Greek schoolchildren			10yr–15yr	674	319	355		4.00	.69		2.91	.90
Papaioannou & Macdonald	1993	Greek PE	15.9		13yr–18yr	211	93	118	.64			.75	2.79	
Guivernau & Duda	1994	Spanish athletes	20.4	1.6	18yr-25ys	155	108	47	.75	4.36	.52	.84	3.35	.73
Li, Harmer, Acock Vongjaturapat, & Boonverabut	In PR	Thai IC athletes	21.2			421	218	203		3.00			2.96	
Hayashi & Weiss	1994	Japanese marathon	31.0		Adult	205	122	83	.80	3.74	.70	.73	2.74	.70
MEANS									.79	4.08	.57	.81	2.87	.81

ously tested the two-dimensional measurement model presumed to underlie the TEOSQ across four diverse samples (i.e., intercollegiate athletes, college students enrolled in skill classes, high school athletes, and young adolescent youth sport participants). Although somewhat weaker in the case of the college students, single-sample confirmatory factor analysis (CFA) supported the two orthogonal factor structure in each group (GFI = .89 - .91; RMSR = .06 - .09). The multisample CFA revealed that the proposed two-dimension structure of the TEOSQ was not identical across the four samples. Chi and Duda suggested that differences (due to gender, age, and/or level and type of sport involvement) between the groups tested might have contributed to this observed variance.

In their research on male and female elite Spanish athletes, Guivernau and Duda (1994) also employed CFA to examine the factorial validity of their Spanish translation of the TEOSQ. The findings provided cross-cultural support for the two-factor dimensionality of the instrument.

In a study of male and female college students, Li, Harmer, and Acock (1996) employed CFA to test for invariant measurement properties and factor structures of the TEOSQ across gender. Although there was significant variation in the latent mean structure of the ego orientation scale, Li and his colleagues found measurement invariance suggesting that the two goal orientations are similarly conceptualized by male and female students. Using a confirmatory factor analytic procedure, Li, Harmer, Chi, and Vongjaturapat (1996) also observed that the hypothesized two-factor structure of the TEOSQ provided a good fitting model for samples of male college students from the United States, Thailand, and Taiwan. Their results also supported the orthogonality of the task and ego goal dimensions, but only in the case of the U.S. and Taiwanese samples (i.e., task and ego orientations were positively correlated for the Thailand subjects). Moreover, the samples from the first two countries exhibited higher task orientation scores than the Thai college students. Li, Harmer, Chi, and Vongjaturapat (1996) indicated that it is not possible to discern whether such between country variability is due to cultural factors or competitive level differences.

Li, Harmer, Acock, Vongjaturapat and Boonverabut (in press) tested the factorial validity of the TEOSQ across male and female Thai intercollegiate athletes. CFA supported the two-factor structure in the case of both genders although a strong negative relationship between the orientations emerged. Except for the factor loadings of two items on the task scale, testings of the factor covariances across males/females supported measurement invariance.

Concurrent validity. The concurrent validity of the TEOSQ was initially examined in a study in which the task and ego orientation sport scales and the parallel measures from the classroom-based Motivation Orientation Scales were administered to a sample of 205 high school students (Duda & Nicholls, 1992). As Nicholls (1992) has suggested that the two goal orientations (task and ego) reflect individual differences in the meaning or focus of achievement activities per se, we expected considerable cross-situation generalizability. Supporting this prediction and providing evidence for the validity of the TEOSQ, strong positive correlations were found between the sport task and ego orientation scales of the TEOSQ and their classroom counterparts (r = .67 and .62, respectively). These findings have been replicated in studies of college students (Guivernau, Thorne, & Duda, 1994) and elite Spanish student-athletes (Guivernau & Duda, 1997).

Predictive validity. Considerable work has been conducted on the relationships between task and ego orientation (as assessed by the TEOSQ) and various indices of motivation. As this research has been reviewed elsewhere (see Duda, 1992, 1993, 1994, 1996), the details of these investigations will not be described in the present chapter.

In general, the literature provides support for the predictive utility of the TEOSQ as a measure of dispositional goal perspectives in the athletic domain. For example, studies have examined the interdependencies of scores on the task and ego scores with

1. *Perceptions of the purposes of sport* (Duda, 1989; McNamara & Duda, 1997; White, Duda & Keller, 1997). Aligned with classroom-based studies and the tenets of goal perspective theory (Nicholls, 1989), scores on the task orientation scale have related to more intrinsic, prosocial views about the functions of athletic involvement. The ego orientation scale of the TEOSQ has been linked to extrinsic and self-serving perceptions concerning what the purposes of sport should be.
2. *Enjoyment, interest, satisfaction and affect/mood* (Boyd & Yin, 1996; Duda, et al., 1995; Duda, et al., 1992; Hall & Earles, 1995; Hom, Duda, & Miller, 1993; Vlachopoulos & Biddle, 1996; Vlachopoulos, Biddle, & Fox, 1996). In accord with theoretical predictions, task orientation (which entails a more process-oriented focus and the involvement in activities for their own sake rather than as a means to an end) is associated with greater enjoyment, heightened investment, and more positive affect/mood states in the physical domain.
3. *Attitudes toward intentional aggressive acts and rule violations or cheating* (Duda & Huston, 1995; Duda, et al.,1991; Stephens & Bredemeier, 1996). Because the concern is with beating others, Nicholls (1989) has suggested that an ego orientation should correspond with a "lack of concern about justice and fairness" as well as the welfare of one's opponent (p. 133). When individuals are predominantly task-oriented, sport is an end in itself. In this case, a person should be less likely to endorse cheating behaviors. The research to date employing the TEOSQ has been consonant with those predictions.
4. *Motives for participation in sport* (White & Duda, 1994). As expected based on achievement goal theory (Nicholls, 1989), scores on the task scale of the TEOSQ have been found to coincide with more intrinsic and cooperative reasons for becoming involved in sport (e.g., to develop one's skills, to be part of a team). On the other hand, ego orientation is coupled with more extrinsic motives for sport participation (e.g., to gain status and recognition).
5. *Beliefs about the causes of success* (Biddle, Akande, Vlachopoulos, & Fox, 1996; Duda, et al., 1992; Duda & Nicholls, 1992; Duda & White, 1992; Guivernau & Duda, 1994; Hom, Duda & Miller, 1993; Newton & Duda, 1993a;

Newton & Walling, 1995; Seifriz, Duda, & Chi, 1992; VanYperen & Duda, 1997; White & Duda, 1993a; White & Zellner, 1996). Because the exerting of effort is intimately tied to perceptions of competence/success when task orientation predominates, we would expect this goal orientation to positively relate to the view that hard work/training/practice are precursors to sport achievement. When ego orientation is pronounced, the focus is on the adequacy of one's ability relative to that of others. Consequently, in this case, it is predicted that the possession of superior ability would be deemed to be a central determinant of "getting ahead" in sport. Other less controllable causes of successful competitive outcomes (such as external factors or illegal practices) would also be expected to positively correlate with ego orientation. In studies employing the TEOSQ among varied groups of sport participants (e.g., youth sport athletes, older adult Master's competitors, elite athletes), this pattern of hypothesized findings has been consistently observed.

6. *Learning and competition strategies* (Lochbaum & Roberts, 1993). Achievement goal theory (Ames, 1992a; Dweck, 1986; Nicholls, 1989) suggests that the adoption of task or ego goals relates to the employment of adaptive (e.g., problem- solving) or maladaptive performance strategies, respectively. The two scales of the TEOSQ have been found to predict effective and ineffective strategy use in the expected directions.
7. *Anxiety and coping strategies* (Gano-Overway & Duda, 1996; Hall & Kerr, in press; Spink, 1995; Tank & White, 1996; White & Zellner, 1996). As the perceived demands in a competitive setting are other referenced and the probability of maintaining high perceived ability is more suspect (Duda, 1992; Nicholls, 1989), an ego orientation should be associated with higher anxiety. When athletes are experiencing stressful situations, the goal perspective literature suggests that task orientation will correspond to more effortful and problem-solving coping behaviors. The findings from studies to date utilizing the TEOSQ and examining athletes' level of state or trait anxiety and/or coping strategies are compatible with these predictions. For example, in a study of British junior fencers between 10 and 18 years of age, Hall and Kerr (in press) found ego orientation to significantly predict cognitive anxiety two and one days prior to a regional fencing tournament. Among the fencers with low perceived ability, an ego orientation was positively linked with cognitive anxiety scores whereas a negative relationship emerged between task orientation and this CSAI-2 subscale. However, Newton and Duda (1995) found goal orientations, as assessed by the TEOSQ, to predict pre-performance state confidence but not somatic and cognitive state anxiety.
8. *Sources of competence information* (Williams, 1994). As goal orientations are assumed to reflect dispositional tendencies in regard to the employment of more or less differentiated conceptions of ability, we would hypothesize that the two TEOSQ scales should differentially relate to reported sources of competence information. Specifically, it would be expected that task orientation is positively associated with more self-referenced criteria. On the other hand, we would predict that there is a positive relationship between ego orientation and norm-referenced sources of competence. Williams (1994) administered the TEOSQ and Sport Competence Information Scale (see Horn & Amorose, this volume) to 152 high school athletes and found partial support for these predictions. A high task orientation (and low ego orientation) corresponded to such sources as goal attainment, the experience of learning and improvement, sport enjoyment, and pregame attitude as well as parental feedback. Social comparison information was the source of competence information most linked to a strong ego orientation.
9. *Perceptions of significant others' goal orientations* (Duda & Hom, 1993; Ebbeck & Becker, 1994; Kimiecik, Horn & Shurin, 1996; Weigand, 1996). It is assumed that one's goal orientation is a function of socialization processes (Duda, 1992, 1993). Thus, we would expect a correspondence between individuals' degree of task and ego orientation and the perceived goal orientations held by people important in their lives. Research to date has supported this assumption.
10. *Social loafing* (Swain, 1996). Social loafing is the term used to describe the phenomenon wherein individuals lower their exerted effort when working in a group in contrast to working by themselves on the same task. Swain argued that this process would be most pronounced among highly ego-oriented individuals if they found themselves in a group activity entailing outputs that could not be personally identified. Strongly task-oriented people (especially if their ego orientation is low) are expected to try hard regardless of whether they have an individual task or a team activity that entails identifiable or nonidentifiable personal performance. Employing the TEOSQ to assess goal orientations among a sample of 10th grade British males, Swain's findings were aligned with these suppositions, and
11. *Motivation-related behaviors.* Although the study of achievement motivation begins and ends with the study of behavior, relatively less work has been done examining the behavioral correlates of goal orientations. The studies to date have focused on self-reported behaviors rather than actual (or objective) behavioral measures. Theoretically consistent relationships have emerged between individual differences in goal perspectives, as assessed by the TEOSQ, and performance, reported effort, and task choice in sport-related settings (Chi, 1993; VanYperen & Duda, 1997). In investigations involving children, Dempsey, Kimiecik, and Horn (1993) and Kimiecik et al. (1996) have found task orientation to be positively linked with self-reported moderate-to-vigorous physical activity levels.

Summary

The TEOSQ is a conceptually driven instrument designed to assess dispositional proneness for task- and ego-involved goal states in the athletic realm. The operational definitions of task and ego orientations reflected in the TEOSQ stem specifically from the work of Nicholls (1989). This instrument has been found to possess acceptable reliability and be related to a variety of (primarily self-reported) motivation variables in a conceptually consistent manner. The factor structure of the TEOSQ has been repeatedly supported across divergent sam-

ples, although one study (Chi & Duda, 1995) has indicated that some variability between diverse groups may exist when tested simultaneously. A perusal of the mean values and standard deviations for the task and ego TEOSQ scales suggests that the task scores are typically higher and less variable than the ego scores. Thus, if the comparative evaluation of TEOSQ scores among particular individuals or subgroups is necessary in a particular study, it may be necessary to transform a very skewed task distribution prior to statistical analyses.

Perceptions of Success Questionnaire (POSQ)

Conceptual Framework and Definition of Constructs

The conceptual framework for the later development of the POSQ pulled from the work of Nicholls (1989) although different terms were first used to label the constructs. In keeping with Nicholls' (1984) focus on two major achievement goals, the POSQ was created to assess two dimensions, initially termed performance or competitiveness and mastery (Roberts & Balague, 1989, 1991) and recently renamed *ego orientation* and *task orientation* (Treasure & Roberts, 1994b).

Source and Selection of Items

Roberts and Balague (1989) created an initial pool of 48 items, drawing on the existing instruments and literature that addressed perceptions of success in sport. A panel of experts was used to identify items that best represented the constructs of mastery or competitiveness/performance (as reflected in the work of Nicholls [1989] and Dweck [1986]). Specifically, sport mastery goal orientation was defined for the experts as follows:

> This conception of ability is evident as a personal goal when a person's actions are aimed at achieving mastery, improving or perfecting a skill or task pertinent to sport performance. When effort is applied, effort is seen to lead to greater learning, mastery or personal skill. Ability is self referenced in that higher ability means the person has improved their own competence at the task.

In contrast, sport performance goal orientation was operationalized as:

> This conception of ability is evident as a personal goal when a person's actions are to compare one's own level of skill or performance with that of others. The focus of attention is on others, and one assesses the effort and ability of others in order to assess own ability and effort and judge whether own ability is greater than or less than that of others. Outcome, winning or losing is important to these people. High perceived ability means ability can be demonstrated, especially through winning, and low perceived ability means ability probably cannot be demonstrated, especially if one expects to lose. Effort is applied or not applied when it is seen to enhance demonstration of ability (e.g., winning without exerting much effort is seen as confirmation of high ability.)

Based on this rating of face validity, 29 items were retained.

The 29-item version of the POSQ was then administered to a large sample of athletes, and exploratory factor analysis yielded two factors that accounted for 48% of the variance and were labeled "mastery" and "competitiveness" (Roberts & Balague, 1989). Three items were eliminated because they loaded on both factors or reduced alpha coefficients so the initial POSQ comprised 26 items (Roberts & Balague, 1989). Following administration to several populations the instrument was reduced to two 8-item scales, then to a short form of two 6-item scales. The short form correlated highly (Roberts & Balague, 1991) with the standard form (task orientation .98, ego orientation .97).

The POSQ uses the same stem as the TEOSQ, that is,"I feel successful in sport when...". Exemplary items from the task orientation scale include "I overcome difficulties" and "I perform to the best of my ability." Examples of items that compose the ego orientation scale include "I beat other people" and "I outperform my opponents." In contrast to the TEOSQ but not surprising given the operational definition of a sport- performance goal orientation provided above, the item "I win" also is included in the ego orientation scale. Responses to the POSQ are indicated on a 5-point Likert-type scale anchored by *strongly agree* and *strongly disagree*.

Norms

As can be seen in Table 2, the descriptive statistics for the POSQ scales follow the same pattern as for the respective scales of the TEOSQ. That is, we see a skewed distribution for the task orientation scale and a more normally distributed distribution for the ego orientation scale. For example, in the case of 96 parents of British schoolchildren, the mean for task orientation was 4.48 ± .59, and the mean for ego orientation was 2.82 ± 1.08 (Roberts, Treasure, & Hall, 1994). In their study of 285 male and female college students enrolled in tennis classes, Kavussanu and Roberts (1996a) report a mean task scale score of 4.37 ± .56 and a mean ego scale score of 3.04 ± .90.

Reliability

Test-retest reliability. Test-retest reliability after one week was .80 for task orientation and .78 for ego orientation as assessed via the POSQ (Roberts, Treasure, & Balague, in press).

Internal consistency. The internal consistency of the original POSQ scales (Roberts & Balague, 1989) using Cronbach's alpha was .92 for task orientation and .90 for ego orientation, whereas that of the 6-item scale was .87 for task orientation and .84 for ego orientation (Roberts, et al., in press) with values ranging from .85 to .90 for task orientation and .82 to .89 for ego orientation in different age groups (Treasure & Roberts, 1994a). Thus, the two scales of the POSQ have demonstrated acceptable internal reliability with an average alpha of .81 for the task scale and .82 for the ego scale (Table 2.)

Validity

Factorial validity. Exploratory factor analysis of the 12-item POSQ with a sample of 330 British school children (Treasure & Roberts, 1994a) yielded two factors with intercorrelations of .07 for first-year students (*M* Age = 11.3 years), .12 for 3rd-year students (*M* Age = 13.4 years), and -.27 for 5th-year students (*M* Age = 15.3 years). This two-factor structure has also emerged in the case of older adults (Roberts, et al., 1994), elite

Table 2.
Data From Studies Using the Perceptions of Success Questionnaire in Ascending Order by Age

Authors	Date	Subjects	Age			*N*			Task			Ego		
			Mean	*SD*	Range	Total	Male	Female	Alpha	Mean	*SD*	Alpha	Mean	*SD*
Treasure & Roberts	1994b	UK schoolchildren	11.3	.5	11yr - 12yr	96	53	43	.92	4.12	.82	.90	2.36	.91
Treasure & Roberts	1994a	UK schoolchildren				330								
			11.3	.5	11yr - 12yr	96	48	48	.88	4.08	.89	.82	2.56	.89
			13.4	.5	13yr-14yr	156	78	78	.85	4.12	.74	.85	2.89	.90
			15.3	.5	15yr - 16yr	78	34	44	.90	4.36	.66	.89	2.94	.27
Hall, Matthews, & Kerr	1996	UK HS runners			High school	119	45	74	.85	3.99	.71	.83	2.81	.99
									.72	3.66	.76	.76	2.66	.83
Roberts & Balague	1989	Sport participants								4.35	.60		2.43	.75
Kavussanu & Roberts	1996a	Tennis class			College	285	147	119	.88	4.37	.56	.90	3.04	.90
Kavussanu & Roberts	1996b	Activity classes	22.5	3.4	17yr - 40yr	131	103	27	.85	4.32	.49	.87	3.27	.71
Kavussanu & Roberts	1996c	Student competitors	21		18yr - 44yr	333	227	106	.80	4.63		.86	3.70	
Roberts, Treasure,& Hall	1994	Parents of UK schoolchildren			Adult	96	40	52	.90	4.46	.59	.84	2.82	1.08
TRANSLATIONS														
Gernigon & Le Bars	1995	French judo/ aikido chidren	12.1	2.0		80	47	33		4.46			2.96	
Sarrazin, Biddle, Famose, Cury, Fox, & Durand	1996	French schools	14.0	1.6	11yr - 17yr	304	184	20	.75	4.52	.50	.76	3.04	1.03
Cury, Biddle, Famose, Goudas, Sarrazin, & Durand	1996	French schoolgirls	14.5	.7	13yr - 16yr	700	0.0	700	.79	4.25	.54	.90	3.35	.99
Gernigon & Le Bars	1995	French judo/ aikido adults	28.5	10.0		84	48	36		4.33			2.54	
Roberts & Ommundsen	1996	Norwegian student athletes	21.2	1.6	19yr - 26yr	148	70	78	.81	4.69	.47	.79	3.63	.80
Brunel	1996	Graduate students			Adult	225	150	105	.81	4.43	.51	.70	2.72	.87
Pensgaard & Roberts	1995	Norwegian Winter Olympians	25.2	3.8	19yr - 35yr	69	49	20	.76	4.52	.46	.75	3.93	.67
Pensgaard, Roberts,& Ursin	1995	Norwegian Paralympic	30.4	9.4	15yr - 50yr	30	23	7	.69	4.61	.41	.78	3.99	.69
Ommundsen & Roberts	1996	Nowegian elite			Adult	230	123	107	.60	3.23	.35	.81	2.99	.77
MEANS									.81	4.27	.59	.82	3.03	.79

athletes (Roberts & Ommundsen, 1996), and cross-cultural samples (Roberts, et al., in press). Confirmatory factor analysis with a sample of 274 adolescent female basketball players (Roberts, et al., in press) yielded an acceptable fit of the data to the hypothesized two-factor model (TLI = .90; RMSR = .07).

Concurrent validity. Evidence for the validity of the POSQ scales is found in their correlation with the respective TEOSQ scales. The original version of POSQ (Roberts & Balague, 1989) had correlations of .69 for task orientation and .80 for ego orientation, and the 12-item version (Roberts & Balague, 1991) correlated .71 in the case of task orientation and .80 for ego orientation. In a recent study of Portuguese adolescent soccer players, Fonseca and Balague (1996) report correlations of .62 and .49 respectively between the task and ego scales of the latest versions of the TEOSQ and POSQ.

Construct validity. As pointed out by Roberts, et al., (in press), research providing evidence for the construct validity of the POSQ has primarily "focused on three sets of personal beliefs, namely purposes of sport, beliefs about the causes of success and sources of satisfaction...". Given that the development of the POSQ is also steeped in Nicholls' (1989) achievement goal model of motivation, the predictions concerning the relationship of the task and ego orientation scales of the POSQ to beliefs about the determinants of achievement and views about the functions of sport are identical to what has been outlined above for the TEOSQ. Conceptually consistent findings have emerged in the case of the latter (Roberts & Ommundsen, 1996; Roberts, Hall, Jackson, Kimiecik, & Tonymon, 1995; Treasure & Roberts, 1994b) and former (Roberts, et al., in press; Treasure & Roberts, 1994b) set of variables.

Based on the conceptual definitions of task and ego goals, it would be expected that the predictors of individuals' satisfaction in sport would vary in relation to their goal orientation. Among samples ranging from children to elite adult athletes (Roberts & Ommundsen, 1996; Treasure & Roberts, 1994b), task orientation was found to correspond to reported satisfaction grounded in mastery experiences. As predicted, ego orientation was linked to the demonstration of normatively

referenced ability as an important source of satisfaction.

Hall, Matthews, and Kerr (1996) examined the links between task and ego orientation scores on the POSQ and multidimensional state anxiety. The subjects were high school age runners, and the anxiety measures were obtained on four occasions before a cross-country meet. Consistent with theoretical predictions, ego orientation (assessed 30 minutes prior to performance) emerged as a positive and significant predictor of precompetition cognitive anxiety.

In their study of college students enrolled in tennis classes, Kavussanu and Roberts (1996a) examined the relationships between POSQ scale scores and the students' intrinsic motivation and self-efficacy. Compatible to results obtained with the TEOSQ, a positive association between task orientation and the composite Intrinsic Motivation Inventory score was revealed. Kavussanu and Roberts argued that "goal perspectives are expected to influence self-confidence" and regarded self-efficacy to be "a situation-specific form of self confidence" (p. 266). As perceptions of competence are self-referenced when task involved, Kavussanu and Roberts hypothesized that there would be a positive relationship between task orientation and self-efficacy. In contrast, as ego involvement entails that "perceptions of competence are inextricably linked to the performance of others...(which is a) factor over which the individual has no control," it was predicted that the "development and maintenance of confidence" would be more difficult in this case (p. 266). When perceptions of the motivational climate and perceptions of ability were entered in the regression analysis, goal orientations (as assessed by the POSQ) did not emerge as predictors of self-efficacy in this study.

Summary

The research conducted utilizing the POSQ has provided evidence for the strong psychometric attributes of this instrument. The POSQ scales exhibit acceptable internal reliability and have been found to predict motivation indices in a manner that is generally congruent with theoretical expectations. Investigations employing exploratory and confirmatory factor analysis techniques have garnered support for the factor structure of the POSQ.

Distinctions Between Measures of Goal Orientations and Other Scales (COI/ SOQ)

There are a number of distinctions between the measures of dispositional achievement goal orientations described in this chapter (i.e., the TEOSQ and POSQ) and existing assessments of other motivation-related orientations in the sport literature (i.e., the Competitive Orientation Inventory or COI) Vealey, 1986, and the Sport Orientation Questionnaire or SOQ, Gill & Deeter, 1988). Unfortunately, all of these instruments have been labelled assessments of achievement orientations specific to the realm of sport (see Gill, Kelly, Martin, & Caruso, 1991; Weiss & Chaumeton, 1994), and thus, it has been suggested that they measure similar constructs.

When compared to the TEOSQ and POSQ, the SOQ and COI have different conceptual foundations. First, although Vealey (1986) pulls from the contributions of Maehr and Nicholls (1980) in developing the COI, this instrument and the SOQ do *not* assess people's proneness for task- and ego-involved goals. Moreover, the assumed underlying structures (i.e., the number of dimensions and their degree of interdependence) of the TEOSQ/POSQ, COI, and SOQ are not the same.

Vealey's (1986) Competitive Orientation Inventory was developed to assess an individual difference variable hypothesized to be impacting individuals' degree of confidence and state anxiety in competitive sport situations. In an effort to capture variability in subjective success underlying goal accomplishment, the instrument assesses one's source of satisfaction when competing, namely playing well versus winning. Emphasis on the former is assumed to reflect a "performance orientation" whereas emphasis on the latter is presumed indicative of an "outcome orientation." With an eye toward conceptual clarity, it should be noted that Vealey uses the term *performance* to reflect a perspective that could be considered more task-involved (but not equivalent to a task orientation). Dweck (1986) and Ames (1992a), on the other hand, employ the term *performance* to reflect an ego-involved goal orientation or ego-involving atmosphere, respectively. In terms of work on achievement goals, such opposing use of critical concepts leads to greater perplexity in the literature and a lack of preciseness in the definition of the concepts themselves. As stated by Nicholls (1992), the term performance goal has been used in two ways:

> to imply ego orientation (Dweck & Elliott, 1983) and something closer to task orientation (Vealey, 1986). My reading of the dictionaries suggests the latter is more consistent with established usage....(In general, however, the) use of the term performance to describe an achievement goal creates confusion because... performance has long referred to how well individuals execute tasks. Any performance (in the case of task execution) can reflect egotistic or task-intrinsic goals (p. 55).

The COI places the performance and outcome orientations in opposition to each other and, thus, requires respondents to rate their satisfaction with 16 possible combinations of outcome (e.g., close loss) and performance (e.g., above average). In Vealey's words (1986), the instrument forces "athletes to weigh the value of both goals simultaneously" (p. 225). Consequently, Vealey (1986) initially proposed scoring the COI by calculating the proportion of variance due to performance and the proportion due to outcome. These scores are negatively related. In subsequent work (Vealey, 1988), it was suggested that a composite performance-orientation be calculated by averaging the performance score and the inverse of the outcome score.

Duda (1992) presented data from a study in which the COI and TEOSQ were administered to a sample of undergraduate students enrolled in physical education classes. As shown in Table 3, ego orientation, but not task orientation, was positively and significantly related to Vealey's (1986) outcome orientation scale. This finding makes conceptual sense as a successful outcome would be more salient to someone who is concerned about demonstrating superior ability than to a person focused on personal mastery. However, it should be noted that the shared variance between the ego orientation and outcome orientation scales was very low ($R^2 = .04$) and indicates that these two scales assess different constructs. Given the theoretically

Table 3.
Correlates of the TEOSQ and POSQ Inventories With Other Scales: TEOSQ data from Duda (1992); POSQ data from Marsh (1994)

	TEOSQ		POSQ	
	Task	Ego	Task	Ego
Competitive Orientation Inventory (Vealey, 1986)				
Performance orientation	.04	-.18		
Outcome orientation	-.04	.21*		
Sport Orientation Questionnaire (Gill & Deeter, 1988)				
Competitiveness	.25*	.53**	.56**	.50**
Goal orientation	.56**	.37**	.78**	.35**
Win orientation	.14	.61**	.07	.58**

* $p < .05$, ** $p < .01$
TEOSQ=Task and Ego Orientation in Sport Questionnaire
POSQ=Perceptions of Success Questionnaire

based definition of ego orientation, this result was also expected as an individual needs to take into account the outcome as well as the difficulty of the opponent/task, amount of effort one and one's opponent exerted, etc. when judging one's level of normative ability.

Duda (1992) reported that, as hypothesized, neither ego nor task orientation was associated with scores on the COI's performance orientation scale. As she pointed out, the concept of "playing well" is ambiguous when examined from the standpoint of variations in dispositional goal perspectives. Both a person who is strongly task oriented and an individual who is markedly ego oriented want to play well. The meaning of quality play would vary, however, depending on whether the athlete was in a state of task or ego involvement.

Gill and Deeter's (1988) Sport Orientation Questionnaire was developed to measure individual differences in approaches to sport competition. In contrast to the TEOSQ, POSQ, and COI, the SOQ evolved from the multidimensional model of achievement motivation as proposed by Spence and Helmreich (1983). The instrument comprised factor analytically derived scales labeled Competitiveness (which is conceptualized as a desire to enter and strive for success in sport achievement situations) and two scales focused on major types of sport outcomes, namely to win (Win Orientation) or reach personal goals (Goal Orientation). In contrast to the TEOSQ/POSQ scales, the three dimensions of the SOQ are not orthogonal.

Research has examined the associations between scores on the TEOSQ and SOQ scales (Duda, 1992) and the POSQ and SOQ scales (Marsh, 1994). Table 3 demonstrates that, in both studies, the SOQ Competitiveness scale was ambiguous in goal perspective terms as the task and ego scales of the TEOSQ and POSQ correlated with it. This pattern of results is not surprising because we would theoretically expect both strongly task- or ego-oriented individuals to be competitive and attracted to competition. As argued by Duda (1992, 1996), one can demonstrate both self-referenced and normative ability via the competitive process. In general, these findings exemplify the problem associated with equating an ego orientation scale to competitiveness or a desire to compete (as was the case in the original labeling of the POSQ ego scale). With respect to this point, Nicholls (1992) has argued that "competition is a defining feature of many sports....Thus speaking of competitive goals as similar to egotism is problematic" (p. 55). He suggests that the motivationally insightful issue is *why* an individual wants to compete and the answer to that question can reflect task- and/or ego-involved reasons.

Similarly all the TEOSQ/POSQ scales were significantly correlated with the SOQ Goal Orientation scale, although the relationship was higher with the task scales than with the measures of ego orientation. A person who is highly task oriented or ego oriented is *goal* oriented; such individuals vary with respect to the criteria underlying subjective goal accomplishment. The shared variance ($R^2 = .12 - .31$) between the Goal Orientation scale and the ego scales of the TEOSQ and POSQ and the task scale of the TEOSQ indicates, though, that these assessments are not redundant. In contrast, the task scale of the POSQ shared 61% of the variance with the SOQ's Goal Orientation Scale. This finding, along with the observed correlations between the POSQ and TEOSQ task scales (e.g., Roberts & Balague, 1989, 1991) suggests that the former scales are assessing a somewhat different conception of task orientation.

As would be expected based on the conceptual definition of an ego orientation, the ego goal scales of the TEOSQ and POSQ correlated significantly with the SOQ Win Orientation. However, once again the observed shared variance indicated that the constructs were not synonymous. We assume that those who are strongly ego oriented would be concerned with beating others in a competitive contest. Highly task-oriented individuals, in contrast, want to win (as they can receive information concerning personal improvement and exerted effort through winning), but this is not their motivational focus when competing.

In sum, the evidence to date demonstrates that the COI and SOQ, when compared with the TEOSQ and POSQ, do not assess the same constructs. The conceptual underpinnings of the former measures are also not aligned with the assessment of goal orientations as grounded in goal perspective theory (Dweck, 1986; Nicholls, 1984, 1989). Research that has examined the interrelationships between scores on the TEOSQ or POSQ scales and the COI and SOQ scales reinforces the distinctions between the measures and provides more insight into the nature and characteristics of task and ego orientations.

Research in Physical Education

Because physical education is also a salient achievement domain in which the demonstration of ability is important, scholars have advocated the application of goal perspective theory to frame investigations of motivation in this setting (Duda, 1996;

Papaioannou, 1995a; Treasure & Roberts, 1995). The TEOSQ has been adapted for the context of physical education by changing the stem to read "I feel most successful in PE class when...". Research based on U.S. (Solmon & Boone, 1993; Walling & Duda, 1995), British (Goudas, Biddle, & Fox, 1994a,b; Hall & Earles, 1995; Linford & Fazey, 1994) and Greek (Papaioannou, 1990; Papaioannou & Macdonald, 1993) adolescent students has provided evidence for the factorial validity, predictive validity, and internal reliability of the TEOSQ in this setting.

For example, in their study of students enrolled in college-level tennis classes, Solmon and Boone (1993) examined the relationships between goal orientations (as assessed by the TEOSQ) and students' reported class-related thoughts and behaviors. Aligned with theoretical tenets, researchers found that task orientation positively predicted students' preference for optimally challenging tasks and cognitive learning processes (e.g., the reported use of effective learning strategies). These latter variables were positively related to tennis skill attainment, which was operationalized as residual gain scores on a tennis skill test.

Some Concluding and Critical Thoughts

The two well-established measures of dispositional task and ego orientations, namely the TEOSQ and POSQ, differ conceptually and methodologically from the early assessments of achievement goal orientations such as the AOQ and the MGPQ. First, the TEOSQ and POSQ do not employ the critical incident method and request subjects to recall and record a successful personal experience. Therefore, the TEOSQ and POSQ take less time to administer. However, in some cases, the use of a critical incident when employing these two instruments may improve their validity and reliability. This method would provide a frame of reference for young subjects whose conceptions of task and, in particular, ego goals are just becoming established.

Second, the TEOSQ and POSQ (as presently structured) are designed to exclusively tap the dispositional tendency to emphasize task- and ego-involved goals. Other goal orientations, such as social approval as assessed by the AOQ and MGPQ, are not considered in the former instruments.

Third, as discussed above, it is important to note that existing measures of task and ego goal orientations should not be equated to available assessments of individuals' approaches to competition or emphases on successful competitive outcomes versus playing well. In research based on Nicholls' (1989) theoretical framework particularly, the SOQ or COI should not be substituted for a determination of individual differences in achievement goal perspectives.

Finally, an examination of the items and results from studies employing these measures suggests that the TEOSQ and POSQ interpret task orientation differently from Maehr and Nicholls' (1980) initial proposal that task-oriented motivation reflects a self-referenced perception of success in which ability is not salient. Both instruments include items about succeeding by trying hard in their task orientation scales so the definition has narrowed to reflect a self-referenced view of success that is achieved in a particular manner. This is consistent with Nicholls' (1984) modification/extension of Maehr and Nicholls' (1980) work to suggest that goal orientations arise from different conceptions of ability and that task orientation is exemplified when an undifferentiated conception of ability is employed (i.e., when demonstrated effort reflects ability). Conceptually, this characteristic of the TEOSQ and POSQ measures means that a variable that was initially a potential correlate of task orientation is now included within the construct. Methodologically, the effect is that effort-related variables are likely to correlate with task orientation but not with ego orientation.

In contrast, although Nicholls (1984, 1989) also argues that success without effort will be a feature of ego orientation, neither the TEOSQ nor the POSQ includes items relating to the emphasis placed on "easy" success in their ego scales. Revising the ego orientation scales of the TEOSQ and POSQ to include items about succeeding without effort may result in negative associations between effort-related variables and ego orientation. Such a modification, however, would probably reduce the orthogonality of the TEOSQ and POSQ task and ego scales.

SITUATIONAL GOAL STRUCTURE OR PERCEIVED MOTIVATIONAL CLIMATE

The instruments developed to assess situationally emphasized goal perspectives, or the subjective motivational climate, in the sport domain have drawn on the classroom-based work of Ames and Archer (1988). These researchers operationalized mastery and performance dimensions of classrooms by first identifying theoretical distinctions between these goals in terms of classroom parameters and then developing a set of items to assess these characteristics. The items, contained in Ames and Archer's Classroom Goals Achievement Questionnaire, were preceded by the stem "In this class...." and responded to on a 5-point Likert scale anchored by *Strongly agree* and *Strongly disagree*. Exploratory factor analysis yielded a two-factor solution with the uncorrelated factors (r = -.03) showing good internal consistency assessed by Cronbach's alpha (Mastery .88, Performance .77) and a mean of 3.32 (SD = .61) for the mastery climate scale and 3.51 (SD = .49) for the performance climate scale.

Measurement in Sport

Perceived Motivational Climate in Sport

Questionnaire Conceptual Framework and Definition of Constructs

Although goal perspective theory (Nicholls, 1989) predicts that an individual's transitory state of task or ego involvement is dependent on both dispositional differences and situational variables, Seifriz et al. (1992) observed that athletes' perceptions of situationally emphasized goals had not yet been examined in the literature. They drew their ideas from classroom research (Ames, 1992a) which focused on the motivational implications of competitive (or ego-involving) and individualistic (task-involving) goal structures, and they argued that the situational goal structure or motivational climate in athletic settings was a function of the goals to be achieved, the evaluation and reward process, and how individuals are requested to relate to each other in a particular setting. The Perceived Motivational Climate in Sport Questionnaire or PMCSQ (and its extensions/revisions) was constructed by Duda and her students to

measure task-involving and ego-involving climates deemed to be operating in sport. These were initially termed mastery and performance climates, respectively, in accordance with Ames and Archer (1988).

Source and Selection of Items

An initial pool of 106 items was drawn from the Classroom Achievement Goals Questionnaire (Ames & Archer, 1988) or generated by the investigators. When developing this pool, we (Seifriz, et al., 1992) wanted to avoid the use of items that used the word "I" (as are found in the Classroom Achievement Goals Questionnaire). We thought that this would foster ambiguity by suggesting the assessment of personal goals in contrast to athletes' views of the pervading atmosphere on their team, in their gym, etc. That is, the objective of the PMCSQ was to tap that which is perceived to be the situational emphasis, rather than the goal perspectives that athletes have internalized. Face validity of the items was judged by a panel of eight experts, and 40 items were retained. Those items kept showed 100% agreement on the dimension hypothesized to be measured by the item and a mean of 4 or more on a 5-point scale reflecting the quality of the item in capturing the construct in question. The stem "On this basketball team ..." was used for all items. As has been the recommendation when utilizing the PMCSQ (and subsequent revisions), the initial data collection of Seifriz and his colleagues (1992) entailed administering the instrument when the motivational environment had been established (in this case, midseason).

Factorial Validity

Exploratory factor analysis (principal components followed by orthogonal and oblique rotations) with 105 basketball players from nine high school teams yielded 12 factors of which 2 were predominant and consistent with theoretical constructs and previous classroom work. Twenty-one items were retained and submitted to a second factor analysis in which 2 factors emerged with an interfactor correlation of -.26. It was suggested that the low negative correlation emerged because the subjects could not simultaneously agree with items such as "On this team, mistakes are considered part of learning" and "On this team, players are punished for mistakes."

In a subsequent study with 109 young athletes, Walling, Duda, and Chi (1993) conducted a confirmatory factor analysis that produced moderate fit indices (X^2/df 2.93, GFI .77, RMSR .108) with a large number of correlated errors in the data implying the presence of minor factors within the scales. The fit was improved after using modification indices and freeing 17 pairs of theta-deltas (X^2/df 2.02, GFI .85, RMSR .091). Content of the final items forming the task-involving dimension related to an emphasis on improving skills, working hard, and having an important role on the team. Items contained in the ego-involving scale related to an emphasis on the demonstration of better performance than others (such as one's teammates) or intra-team rivalry, unequal recognition (i.e., perceiving that the coach provides the most attention to the more talented athletes) and punishment for mistakes.

Reliability

The internal consistency of the scales, using Cronbach's alpha, ranged from .73 to .84 for the 12-item ego-involving climate scale and .80 to .81 for the 9-item task-involving climate scale (Table 4; Seifriz et al., 1992; Walling et al., 1993). The test-retest reliability of the PMCSQ was .68 over a one-month period (Barnes, Page & McKenna, 1997). We would expect that the test-retest correlation for the perceived situational goal perspective would be in the moderate range for an established motivational climate, i.e., unless there had been a change in the coaching staff, team composition, level of play/competition, etc. In other words, the test-retest reliability should be lower in this case than what has generally been observed for assessments of dispositional goal orientations.

Construct Validity

Seifriz et al. (1992) reported that the nine boys basketball teams they sampled varied in perceptions of the task-involving and ego-involving facets of their motivational climate. The authors argued that task involvement (which should be promoted in a mastery or task-involving atmosphere) would foster intrinsic motivation and the belief that hard work leads to success. They also hypothesized, based on theoretical tenets and existing research, that an ego-involving climate would be associated with the view that ability is necessary for basketball success. Using median splits (i.e., perceptions of a high/low task and high/low ego climate), Seifriz et al. (1992) found the expected differences between high and low task climate groups in intrinsic motivation (assessed by the IMI), enjoyment and beliefs in effort as a cause of success. Also aligned with predictions, the high and low ego-involving climate groups differed in their beliefs that ability determines success.

In a study of adolescent athletes involved in a multisport competition, Walling et al. (1993) found the predicted positive correlation between perceptions of a task-involving climate and reported team satisfaction. Consistent with their hypothesis, a positive association between perceptions of an ego-involving climate and the athletes' degree of performance worry also emerged. In a similar vein, Pensgaard and Roberts (1996) investigated the link between perceptions of the motivational climate and sources of stress. Their sample comprised 69 Norwegian athletes who participated in the 1994 Winter Olympic Games. Athletes who perceived that the atmosphere on their team was more ego involving were higher in reported causes of stress, particularly stress due to cognitive factors and their coaches' behaviors. Overall, a perceived task-involving climate corresponded to lower scores on all the sources of stress examined in this investigation.

Boyd, Yin, Ellis, and French (1995) examined the relationship of perceptions of the motivational climate to Little League baseball players' socialization influences and affective responses. In accordance with theoretical predictions, perceptions of a task-involving environment were tied to lower perceived coaches' expectations, more positive affective reactions from coaches and parents, and greater enjoyment and satisfaction among the players. The reverse pattern of these findings was linked to perceptions of an ego-involving sport setting. Further,

Table 4.
Data From Studies Using the Perceived Motivational Climate in Sport Questionnaire in Ascending Order by Age

Authors	Date	Subjects	Age			*N*			Mastery (Task Involving)			Performance (Ego-Involving)		
			Mean	*SD*	Range	Total	Male	Female	Alpha	Mean	*SD*	Alpha	Mean	*SD*
PMCSQ-1														
Boyd, Yin, Ellis, & French	1995	Little League baseball			11yr - 12yr	104			.79	3.51	.51	.85	1.96	.63
Ebbeck & Becker	1994	Youth soccer	12.0	1.3	10yr - 14yr	166	75	91	.81	3.90	.66	.75	2.0:	.71
Walling, Duda, & Chi	1993	Athletes	14.2	1.9		169	86	83	.80	3.7:	.64	.84	2.62	.66
Seifriz, Duda, & Chi	1992	HS Basketball	16.5		14yr - 19yr	105	105	0.0	.84	3.53	.32	.80	3.0:	.37
Kavussanu & Roberts	1996a	Univ. tennis class			College	285	147	119	.74	4.13	.43	.77	2.47	.62
Kavussanu & Roberts	1996b	Activity classes	22.5	3.4	17yr - 40yr	131	103	27	.72	4.05	.44	.79	2.50	.63
Barnes, Page, & McKenna	1996	International. rowers	25.8	4.3		98	56	42	.79	4.01	.49	.76	3.42	.44
		UK/Canada				98				4.08	.50		3.43	.48
Weigand & Davis	1996	Amateur soccer	24.9			115	115	0.0		3.74	.49		2.83	.60
PMCSQ-2 (Second order factors only)														
Guest, White, Jones	In PR	Physical education	13..2	1.1	Grades 6 - 9	171	71	100	.91	3.69	.65	.80	2.40	.70
McCaw, & Vogler		Nonschool sport				171			.90	4.00	.61	.92	3.00	.86
Guest & White	1996	Nonschool sport	13.2		Grades 6 - 9	110	39	71	.90	4.01	.86	.93	3.02	1.31
		Physical education				110			.90	3.62	1.04	.85	2.50	1.06
Andrée & Whitehead	1995	UK track and field	14.0	1.1	10yr - 17yr	138	67	71	.89	4.03	.50	.88	2.33	.65
Whitehead & Andrée	1997	UK track and field	14.4	1.6	11yr- 17yr	111	57	51	.87	4.05	.48	.85	2.58	.67
Newton & Duda	1996	Volleyball	16.2	1.7	14yr- 18yr	385	0.0	385	.87	4.12		.83	2.62	
		Volley/basketball HS IC	16.4		13yr - 23yr	202	0.0	202	.87	3.95		.89	3.12	
TRANSLATIONS														
Roberts & Ommundsen	1996	Norwegian U/G team sports	21.2	1.6	19yr - 26yr	148	70	78	.86	4.15	.75	.77	2.87	.87
Pensgaard & Roberts	1996	Norwegian Winter Olympians	25.2	3.9	19yr - 35yr	49	69	20	.76	3.70	.77	.87	2.50	1.02
CLASSROOM ACHIEVEMENT QUESTIONNAIRE (Excluded from means)														
Treasure	In PR	Elementary school	10.4	0.6	10yr - 12yr	233	114	119	.76	3.78	.56	.78	3.02	.67
MEANS									.84	3.89	.60	.83	2.66	.74

players who perceived that their team atmosphere was more ego involving were more likely to report that they compared their ability to that of other players.

Means/SDs

As shown in Table 4, means for a perceived task-involving climate range from 3.51 to 4.15 with *SD*'s from .32 to 1.04. In the case of the PMCSQ's assessment of a perceived ego-involving climate, means range from 1.96 to 3.43 with *SD*'s from .37 to 1.31. Hence with perceptions of the motivational climate as with dispositional goal orientations, the values observed to date reflect a greater emphasis on task-involving goals than ego-involving goals. However, it should be noted that the existing published data on the perceived motivational climate include only two elite athlete samples (Barnes, Page, & McKenna, 1997; Pensgaard & Roberts, 1996).

Perceived Motivational Climate in Sport Questionnaire -2

Newton and Duda (1993, 1997a) revised the PMCSQ-1 and then tested a multi-subscale version of the Perceived Motivational Climate in Sport Questionnaire (or PMCSQ-2). Their rationale was threefold. First and foremost, Ames (1992a) has suggested that task-involving as well as ego-involving environments are a composite of a number of dimensions such as the basis and type of evaluation present, the amount of social comparison present, the nature and source of rewards, and the ways in which those in the context are expected to work with and regard each other. Second, based on the empirical findings of Walling et al. (1993), it was thought that the differentiation of a subscale structure in the original measurement model underlying the assessment of the perceived motivational climate would help account for greater unexplained variance in the original model. Third, the ability to assess various components of task- and ego-involving atmospheres would enhance our theoretical and practical understanding of how, why, and when the situational goal structure impacts indices of athletes' motivation.

Drawing from these three considerations, an initial pool of 300 items was designed to emphasize the eight following goal structures: (a) emphasis on effort, (b) skill improvement as an integral element of team atmosphere, (c) a perceived contributing role for each team member, (d) mistakes are viewed as part of the learning process, (e) cooperation/cohesiveness is reinforced among players, (f) intra-team rivalry, (g) reinforcement

based on high ability, thus unequal recognition of players, and (h) the view that mistakes are punished. After ratings of face validity of the 300 new items plus the 21 items found in the PMCSQ by a group of judges, 63 items were retained and administered to 225 female volleyball players from 25 teams. This pool was further reduced to 30 items by first calculating Cronbach's alpha for each subscale and eliminating 9 items with low item-total correlations. Exploratory factor analysis on the 54 remaining items yielded 11 first-order factors after which items with loadings below .4 on any factor as well as those that cross-loaded were eliminated. Factor analysis of the remaining items revealed a 30-item six-factor solution. The scales for Effort and Improvement were collapsed, and the scale labelled Mistakes Are Part of Learning was deleted. Confirmatory factor analysis showed that a six-factor model (composed of these six scales) provided a better fit (X^2/df 2.25, GFI .87, RMSR .09) than a two-factor model for the task-involving and ego-involving dimensions (X^2/df 2.33, GFI .68, RMSR .31). The hierarchical model failed to converge.

In a second study, Newton and Duda (1997a) employed structural equation modeling to test the hypothesized hierarchical structure of a further revision of the PMCSQ-2 (i.e., two scale/six subscales) in comparison to a two-scale and a six-subscale measurement model. The subjects were 385 female volleyball players from 45 teams who were participants in a national junior volleyball tournament. In general, the fit indices indicated that each of three measurement models was marginally acceptable (e.g., GFI .85-.87). However, an examination of the Q-plots and root mean square residual values suggested that the hierarchical model (RMSR .07) accounted for more residual variance than did the other two models (RMSR .32-.34).

Reliability

In the first Newton and Duda (1993) investigation, the internal reliabilities for the individual subscales and overall scales ranged from .77 to .93 except in the case of the Cooperation/Cohesiveness and Intra-Team Rivalry subscales (alpha = .66). The follow-up investigation by Newton and Duda (1997a) resulted in internal consistency values ranging from .75 to .87 although the Intra-Team Rivalry subscale proved problematic once again (alpha = .54). In terms of the test-retest reliability, Whitehead and Andrée (1997) found low correlations for the two major climate dimensions (i.e., task involving .24, ego involving .36) over a year but suggested that shorter term tests are more appropriate for climate measures.

Validity

In support of the PMCSQ-2's discriminative validity, Newton and Duda (1993) found that the 25 basketball and volleyball teams they sampled varied in their degree of perceived task- and ego-involving features (i.e., in terms of both the climate scale and subscale scores). The athletes' reported pressure/tension was predicted by a high ego-involving climate and moderate task-involving climate, or by moderate perceptions of the importance of Effort/Improvement and Punishment For Mistakes but a de-emphasis on the importance of each player's role.

In their research on 45 female volleyball teams, Newton and Duda (1997a) found perceptions of a task-involving environment (and scores on the three underlying subscales) were positively associated with the belief that effort causes success, reported effort/importance and enjoyment/interest and negatively correlated with pressure/tension (as assessed via the IMI). In contrast, perceptions of an ego-involving climate (and scores on the three underlying subscales) were negatively related with enjoyment of and interest in volleyball and positively linked to tension/pressure and the belief that ability leads to success.

The Parent-Initiated Motivational Climate Questionnaire

Conceptual Framework and Definition of Constructs

White, Duda, and Hart (1992) observed that work in the classroom (Ames & Archer, 1988) and sport (e.g., Seifriz, et al., 1992) has focused on the role of the teacher or coach in establishing the motivational climate and pointed out that parents are also significant others in establishing the situational goal structure. They cited literature from the athletic domain (e.g., Scanlan & Lewthwaite, 1984) and academic context (e.g., Eccles, Midgley and Alder, 1984) to illustrate how parents' beliefs about their children's abilities and the importance of learning different skills influence children's perceptions of what they think they can do and what is salient in achievement situations. The Parent-Initiated Motivational Climate Questionnaire (PIMCQ) was developed to measure children's perceptions of what their parents view to be most critical when learning new physical activities. This context of concern contrasts with the competitive sport emphasis of the PMCSQ as it focuses more on physical education and learning. The instrument is grounded in goal perspective theory (Nicholls, 1989) and assesses the degree to which the parental environment is deemed more or less task and/or ego involving.

Source and Selection of Items

In terms of the development of the initial version of the PIMCQ, 14 items were adapted from three scales of the Learning and Performance-Oriented Physical Education Climate Questionnaire (i.e., Teacher's Promotion of Learning, Students' Worries About Mistakes, Outcome Orientation Without Effort; Papaioannou, 1994) and written with reference to fathers, and the same 14 were written with reference to mothers. The stem was "I feel that my mother (or father) ...." Responses to the PIMCQ are indicated on a 5-point Likert scale anchored by *Strongly Agree* (1) and *Strongly Disagree* (5).

Factor Structure

Exploratory factor analysis of the 28-item PIMCQ (principal components followed by orthogonal and oblique rotations) with 210 young sport participants from the United States yielded the same three factors for mothers and for fathers (i.e., the factors collapsed across parents) and explained 51.4% of the variance. One factor (Learning-Oriented Climate) reflected a task-involving situational goal structure and two factors (Worry Conducive Climate and Success Without Effort) reflected an ego-involving structure. Exemplary items include "I feel that my mother/father pays attention to whether I am improving my skills," "I feel that my mother/father makes me

Table 5.
Data From Studies Using the Learning and Performance Orientations in Physical Education Questionnare (First Order Factors Only) and the Parent-Initiated Motivational Climate Questionnaire

Authors	Date	Subjects	Age			*N*			Pupils learning			Teacher learning			Competitive			Worries			Easy success		
			Mean	*SD*	Range	Total	Male	Female	Alpha	Mean	*SD*	Alpha	Mean	*SD*	Alpha	Mean	*SD*	Alpha	Mean	*SD*	Alpha	Mean	*SD*
LAPOPECQ																							
Papaioannou	1994	Greek PE			13yr-16yr	1393	699	694	> .83	3.37	.61	>.79	3.70	.77	>.65	2.70	.78	>.65	3.2:	.76	>.64	2.48	.85
Papaioannou & Diggelidis	1996	Greek PE			10yr-15yr	674	319	355	.83	3.5:	.55	.80	4.05	.76		3.38	.87		3.42	.86		2.95	1.08
PIMCQ												**Learning**											
White, Duda, & Hart	1992	Young athletes				210	112	98					3.81						2.29			2.15	
			12.7	.8		58	27	31				.84						.90			.86		
			14.3	.5		91	52	39				.75						.87			.87		
			16.7	.7		61	33	28				.87						.90			.92		
PIMCQ-2												**Learning/enjoyment**											
White	1996a	Volleyball camp	15.4	1.1	14yr-17yr	204	0.0	204				.89	4.08	.46				.91	1.90	.81	.87	1.77	.65
White	In PR	Nonschool sport	14.5			301	149	152	Mother's views ...			.89	3.92	.74				.85	2.05	.94	.73	2.16	.82
									Father's views .			.90	3.98	.78				.90	2.18	1.00	.82	2.31	.95
White & Duda	1993b	PE classes				301	149	152				.92						.90			.84		
		Children	11.7	.5		96	45	51				.91	4.07	.61				.89	1.78	.76	.81	2.07	.78
		Young adoles.	14.6	.5		97	47	50				.94	3.98	.69				.89	2.09	.82	.82	2.22	.83
		Older adoles.	16.7	.8		108	60	48				.92	3.83	.68				.90	2.37	.93	.86	2.36	.79
Guest & White	1996	Young athletes	13.0		11yr-15yr	135	63	72	Mother's views ...			.84	4.16					.87	2.20		.78	2.14	
									Father's views ...			.84	4.0:					.91	2.37		.85	2.18	
									Friend's views ...			.89	3.63					.91	2.24		.83	2.42	

worried about performing skills that I am not good at," and "I feel that my mother/father believes that it is important for me to win without trying," respectively.

Reliability

The internal consistency of the scales, using Cronbach's alpha, was tested separately for three age groups (mean age = 12.7 yr, 14.3 yr., 16.7 yr.) and ranged from .75 to .92 (see Table 5). The test-retest reliability of the PIMCQ has not been examined to date.

Validity

Based on previous research on gender differences in goal perspectives (e.g., Duda, et al., 1991; White & Duda, 1994), boys would be expected to perceive a more ego-involving parental climate whereas girls were predicted to perceive a more task-involved parental perspective when learning physical skills. Providing evidence for the instruments' discriminant validity, White et al. (1992) found significant gender differences for each scale. Boys perceived that their parents reinforced success without effort more than did girls. Girls, on the other hand, perceived greater parental support for learning new skills and were less likely to report that their parents made them wary of making mistakes than were boys.

Means/SDs

Information on the means and standard deviations for the subscales of the PIMCQ reflects the pattern of the other goal perspective instruments with higher scores for task-related than ego-related scales.

Revision of the PIMCQ (the PIMCQ-2)

In subsequent work on the PIMCQ (White & Duda, 1996), four items were added to examine children's perceptions of the value their parents placed on their personal experience of enjoyment while learning new physical skills. These items were constructed on the basis of Scanlan and Simon's (1992) view that sport enjoyment is a positive affective response that denotes feelings such as fun, liking, and pleasure. It was assumed that the emphasis on such feelings while learning would be indicative of a task-involving atmosphere. An example of a new item is "I feel that my mother/father supports my feelings of enjoyment during skill development."

Validity

Exploratory factor analyses of the mother-referenced items and the father-referenced items each yielded three factors, namely a Learning-Oriented/Enjoyment Climate, Worry Conducive Climate, and Success Without Effort Climate dimension. Thus, the enjoyment items did not form a separate scale but, as they were written to do, loaded on the learning-focused factor.

Discriminant or criterion validity was examined by comparing the perceived parental-created climate as a function of age group and gender (White & Duda, 1996). As expected, males perceived that their parents promoted a worry-conducive environment and encouraged achievement with low effort more than did females. Age differences also emerged with scores on task-related scales decreasing with age whereas scores on the ego-related scales increased.

The construct validity of the PIMCQ-2 was initially determined by examining the relationships of the perceived parental motivational climate to young athletes' personal goal orientations as assessed via the TEOSQ (White, 1996a; White & Duda, 1996). Conceptually consistent relationships have been revealed in this research. In subsequent work involving 301 adolescent male and female sport participants (White, in press), higher competitive trait anxiety was linked with a parental environment that de-emphasizes learning/enjoyment, promotes concern about one's performance, and values success with little effort.

Reliability

Across samples of children and younger adolescents, the scales of the PIMCQ-2 have been found to possess high internal reliability (i.e., Learn/Enjoy: .84 - .94; Easy success: .73 - .86; Worry: .85 - .91). There is no available information on the test-retest reliability of the PIMCQ-2.

Measurement in Physical Education

The Perceived Motivational Climate in Sport

The PMCSQ has been adapted for the context of physical education by changing the stem to "In this physical education class..." (Guest, White, Jones, McCaw, & Vogler, in press). The analyses employed in this work focused on the overriding climate scales rather than the hierarchical subscale model (in the case of the PMCSQ-2, specifically). Exemplary items for the task-involving and ego-involving scales are "The PE teacher makes sure students improve on skills they're not good at" and "The PE teacher yells at students for messing up.") Peiro and her colleagues (Peiro, Escarti, & Duda, 1996) translated the PMCSQ-2 into Spanish and also applied the instrument to the assessment of adolescent students' perception of the motivational climate operating in their physical education class. Kavussanu and Roberts (1996a) examined the motivation-related correlates of perceptions of the prevailing goal perspective emphasized in college-level tennis classes. Perceptions of the motivational climate operating (as assessed by the PMCSQ, which was modified for the PE class context and reduced to 17 items) were found to predict intrinsic motivation and students' tennis self-efficacy in the expected directions. Treasure's research (in press) also provides evidence for the predictive validity of the PMCSQ when applied to youth soccer classes in which the situational goal structure was manipulated.

Reliability

When adapted for the physical education setting, Guest et al. (in press) report internal reliabilities of .90 and .85 for the task- and ego-involving scales of the PMCSQ-2, respectively. Kavussanu and Roberts (1996a) observed alpha coefficients of .74 (task) and .77 (ego) for their two modified PMCSQ subscales. Treasure (in press) found the task and ego dimensions of the PMCSQ to be reliable in his work (alphas = .84 and .85, respectively).

Mean/SDs

In the Guest and White (1996) study of 110 young adolescent students (*M* Age = 13.2 years), the mean scale scores for the task- and ego-involving climate deemed to be operating in physical education classes were 3.62 (SD = 1.04) and 2.5 (SD = 1.06), respectively.

Validity

With respect to the predictive validity of the instrument when adapted for the physical education setting, the PMCSQ-2 has been found to relate to adolescent students' personal goal orientations in the expected manner (Guest & White, 1996).

Learning And Performance Oriented Physical Education Climate Questionnaire (LAPOPECQ)

Conceptual Framework and Definition of Constructs

Papaioannou (1992, 1994) observed that most of the work on goal perspective theory had focused on the classroom context and sport rather than physical education. He argued that, at least when compared to the athletic domain, the ability range of the participants is much greater in physical education. Thus, an awareness of the goal perspectives deemed to be emphasized in PE classes would be particularly important to examine if we wish to foster achievement within this setting. As a result, Papaioannou (1994) constructed an instrument to assess perceptions of "learning" and "performance" orientations in physical education classes. In his initial research, these terms (which draw from Dweck's [1986] work) are not concisely defined but introduced in terms of their correlates.

Source and Selection of Items

An initial pool of 80 items was generated by Papaioannou (1992) from questionnaires in the literature on perceptions of the classroom motivational climate (Ames & Archer, 1988) and classroom environment (Fraser, 1986). The face validity of the items was judged by four experts. Forty-five items were retained, and these were further reduced to 24 on the basis of factor analytic data from four pilot studies (Papaioannou, 1992). Two of the five factors extracted reflected a learning or task-involving environment, the first focused on the teacher's behavior and the second on the students' satisfaction with learning. The other three factors focused on a performance or ego-involving environment, one related to evaluation by normative criteria, one related to showing ability by succeeding with little effort, and the third related to worrying about mistakes. Thus, similar to the problem we identified with Ames and Archer's (1988) Classroom Achievement Goal Questionnaire, it seems that the LAPOPECQ captures what students perceive to be the goal structure operating in their PE classes as well as their personal goal orientations in that environment. In other words, the instrument (as presently constructed) appears to combine assessments of dispositional and perceived situationally emphasized goal perspectives.

Factorial Validity

Following the pilot work, exploratory factor analysis (principal components followed by orthogonal and oblique rotations) with 696 of 1,393 adolescents from 55 Greek junior and senior high schools found that these five factors explained 49.5% of variance. Correlations between learning and performance factors were low. The highest inter-factor correlations were between the two learning factors (.39) and between the teacher-initiated learning orientation and the competitive performance orientation (-.20). Confirmatory factor analyses of the responses provided by 697 subjects from the first sample and 394 subjects from 16 junior and senior high school classes confirmed the five-factor first-order model. Results also showed that a hierarchical model, in which two factors comprised a second-order learning orientation and three factors constituted a second-order performance orientation, approached the fit indices of the first-order model and hence could be regarded as a more parsimonious explanation (e.g., GFI's .915, .913; RMSR's .051, .052, respectively).

Reliability

The internal consistency of the scales, using Cronbach's alpha, ranged from .64 to .84 (see Table 5), and (EFA) multiple correlations were low. To date, information on the test-retest reliability of this instrument has not been reported.

Construct Validity

In accord with theoretical predictions, intrinsic motivation (assessed by Harter's [1981] Preference for Challenge Versus Preference for Easy Work scale), and attitude toward the PE lesson (assessed by modifications of Midgley, Feldhaufer and Eccles' [1989] scale on Interest and Perceived Usefulness of the Lesson) positively related to a perceived learning-oriented environment in physical education and were unrelated to a perceived performance-focused climate. Except for the Competitive Orientation scale, the questionnaire discriminated between students in classes taught by different teachers.

Means/SD's

The means and standard deviations for the LAPOPECQ scales have been established separately for each sample tested and are presently specific to Greek students. The observed values generally show highest scores for the "learning" scale and lowest means for the "easy success" scale.

Adaptations of LAPOPECQ Within Physical Education

Conceptual Framework and Definition of Constructs

Goudas and Biddle (1994) argued that existing conceptualizations of the classroom and physical education climate had been largely based on the way achievement was defined and how perceptions of ability were formed in the situation at hand. They suggested that other classroom features would promote a mastery or task-involving goal structure in physical education specifically. In particular, Goudas and Biddle noted that Ames (1992a) emphasized three factors that influence situationally induced goal salience (i.e., task design, evaluation and recognition, distribution of authority) but that the third component had not been examined in physical education contexts. They therefore adapted the LAPOPECQ to include scales on "perceived teacher support" and "perceived student choice." Although no rationale was provided, Goudas and Biddle also dropped the LAPOPECQ's Outcome Without Effort scale.

Source and Selection of Items

This information is not given for the new scales that were added to form the PECCS from the LAPOPECQ. The authors reference Moos and Trickett (1987) in regard to their development of the scale for perceived teacher support. For the perceived-choice scale, Goudas and Biddle (1994) simply cite sample items; for example, ["In this PE class] pupils have a choice of what activities they take part in."

Factorial Validity

Exploratory factor analysis (principal components followed by an oblique rotation) of the responses provided by 254 schoolchildren (aged 13 to 15 years from three comprehensive schools in England) revealed six factors that explained 56.8% of variance. The two LAPOPECQ learning factors (i.e., Teacher Promotion of Learning and Student Satisfaction with Learning) split to form two different learning factors. Interfactor correlations were not given. Composite scores for each scale were subjected to a second-order principal components analysis with varimax rotation. This analysis revealed two factors (explaining 63.7% of the variance), that is, a performance dimension, which comprised the Competitive and Worry scales, and a mastery dimension, which comprised the two new learning factors, and the new Teacher Support and Choice scales.

Confirmatory factor analysis was subsequently conducted (Biddle, et al., 1995) on the 26-item scale. The fit indices for a hierarchical model were moderate (χ^2/df 2.26, GFI .82, RMSR .183) but significantly better than the null model. These authors concluded that the data supported a hierarchical model underlying the PECCS; however, they did not present results regarding a first-order model.

Reliability

The internal consistency of the scales, using Cronbach's alpha, ranged from .64 to .77 after improvement of the Competitive and Choice scales by deletion of one item in each case. Test-retest reliability has not been examined.

Construct Validity

Goudas and Biddle (1994) found that the mastery (task-involving) dimension scores of the PECCS enhanced prediction of intrinsic motivation (as assessed by the Intrinsic Motivation Inventory with the exclusion of the pressure/tension scale) after perceived competence had been accounted for, whereas the performance (ego-involving) dimension scores did not. Children who perceived their physical education environment to be high in both dimensions reported greater perceived competence and enjoyment than did children with low mastery/task-involving climate perceptions. In a second study involving a sample of 85 pupils from a comprehensive school in England, Goudas and

Biddle (1994) reported that perceptions of a task-focused climate had a direct influence on intrinsic motivation and intention in gymnastics and indirect influence in football through their effect on students' goal orientations.

Biddle et al. (1995) report the translation of the 28-item PECCS for French students to form a questionnaire labelled the L'Echelle de Perception du Climat Motivational. The authors added a 4-item scale designed to assess students' perceptions of the promotion of social comparison by their teacher. No conceptual rationale was provided for extending the PECCS in this manner, but it seems to be a logical parallel to the scale assessing promotion of learning by the teacher.

Factorial Validity of the ECPM

After exploratory factor analysis (principal components but no rotation specified) on the responses provided by 311 schoolchildren (aged 13 to 16 years from four different schools in Paris), items loading below 0.4 on any factor were deleted and 3 items were dropped to improve internal consistency. Based on the remaining 19 items, an oblique rotation produced five factors that explained 71% of the variance. These factors were labelled Pursuit of Progress by Pupils, Promotion of Learning by Teacher, Pursuit of Comparison by Pupils, Promotion of Comparison by Teacher, and Worries About Mistakes. Interfactor correlations were not reported by the authors. Further, the two new scales added to the English version of the PECCS (i.e., Teacher Support and Choice) did not emerge as factors in the French study. A second-order oblique factor analysis of the two task-focused and three ego-focused scales yielded two higher order factors explaining 68.8% of the variance. Confirmatory factor analysis with a subsequent sample of 179 schoolchildren from three Paris schools produced an acceptable fit (X^2/df = 1.95, GFI .91, RMSR .066). The internal consistency of the first- and second-order scales ranged from .70 to .89. Test-retest reliability after one week with a sample of 146 pupils from four Paris schools yielded correlations of .69 to .87. The ECPM has been modified further by Cury et al. (1996) by retaining the same factors but eliminating some items. Cury and his colleagues labelled this revised instrument the Perceived Motivational Climate Scale.

Some Concluding and Critical Thoughts

The measurement of perceived situational goal structures in the physical domain is of relatively recent origin; hence, it is less well developed than the existing measures of dispositional goal orientations. Such assessments are also more diverse in scope and focus. That is, measures of perceptions of the motivational climate in physical activity settings vary in terms of the particular context (e.g., sport, physical education) and group of significant others (e.g., coaches, physical education teachers, parents) targeted. They also can be distinguished with respect to the facets or components of the motivational environment that are examined (e.g., social support provided by teacher, interteam member rivalry) although each assesses perceptions of the two major climate dimensions, namely task-involving and ego-involving goal emphases.

Perhaps due to this diversity in the underlying dimensions or characteristics of motivational environments emphasized, careful examination of the existent research on measures of the perceived situational goal structure reveals some slippage in the concept. For example, degree of worry about one's performance is used to validate the PMCSQ but is the focus of a composite scale of the LAPOPECQ and PIMCQ. This is problematic because if such affective variables are assumed to be components rather than correlates of the perceived motivational climate, we cannot then proceed to examine affective consequences of the situationally emphasized goal perspective as these have been embraced within the construct itself.

Clearly, the perceived motivational climate is multidimensional, but researchers must be clear whether their intention is (a) to tap all the variables potentially influencing the prevailing situational goal structure and hence explain a maximum proportion of the variance, (b) to identify that subset of situational mediators that most clearly relate to self- or normatively referenced goal emphases (Nicholls, 1984, 1989), or (c) to examine the antecedents or consequences of perceptions of task- and ego-involving environments. Perhaps this area of measurement would be more conceptually tidy if we restrict the assessment of the perceived climate to the elements of task versus ego involving situations identified by Nicholls (1989). For example, measures of perceptions of the ego involving features of contexts might focus on cognitions regarding the degree to which the environment reflects a testing of valued skills, interpersonal comparison, and the public evaluation of outcomes. On the other hand, we can be less conservative (and, perhaps, more ecologically relevant) and accept the direction taken by Duda and her colleagues in terms of the assessment of the perceived motivational climate. In this case (which is steeped in Nicholls' [1989] framework but draws heavily from the contributions of Ames [1992a,b]), the emphasis is on tapping any relevant dimension of the environment which should make individuals concerned with demonstrating the adequacy of their ability (i.e., ego involving features) or focused on their own performance and the task at hand (i.e., task involving features).

Finally, regardless of which strategy is adopted in the measurement of the perceived motivational climate, there is a similar need for the items employed to accurately reflect the construct being assessed; that is, to assess the climate rather than dispositions and so capture perceptions of situational emphasis rather than internalized individual goal characteristics. For example, the item "Something I learn makes me want to practice more" has been used by Papaioannou and Biddle and his colleagues to assess perceptions of the climate in physical education, although it is from the TEOSQ, a measure of dispositional goal orientations. If the same item is on both dispositional goal orientation and climate scales, it is not surprising that the two measures will correlate, but this probably is an artifact of the way the instruments have been constructed.

At this juncture, it seems prudent to consider whether a growing multiplicity of tests assessing the perceived motivational climate is desirable. A plethora of physical domain-specific measures may provide more precise information in one particular context, but there is a danger that we might end up with a dictionary of tests and an inability to compare results across studies. In other words, it may be difficult to advance our knowledge of the implications of variability in the perceived motivational climate in physical settings because the measures

employed are not common. In this case, if discrepant results are found across studies, we cannot be sure if this is a function of the specific situation, significant other, and sample selected or the questionnaire utilized. Perhaps a common core of items may be developed that are generalizable across all climates (and significant others) operating in the physical domain, to which researchers may add specific items after providing a conceptual rationale.

Illustrating the use of a common core of items in goal perspective research, Peiro, Escarti and Duda (1996) have successfully adopted the TEOSQ to assess the definitions of sport and PE success deemed to be advanced by mothers, fathers, coaches and physical education teachers. The incorporation of this common core allowed for a less confounded determination of the relationship of significant others' definitions of achievement in physical activity settings to adolescents' personal goal orientations. Consistent with the arguments expressed above however, we want to emphasize that these adaptations of the TEOSQ should not be equated to measures of the perceived motivational climate created by the significant others in question. Peiro and her colleagues were specifically concerned with examining adolescents' perceptions of the definitions of sport achievement held by important people in their lives. This is not the same as the assessment of dimensions of the perceived situationally-emphasized goal perspective.

FUTURE DIRECTIONS

In general, the literature stemming from goal perspective theory is indicative of a strongly developed conceptual line of work. The validation of theoretical tenets emanates from studies conducted in both physical education and sport contexts and stems from the efforts of many independent research groups and individuals.

This chapter has provided an overview of the measurement of dispositional and perceived situational goal perspectives in the physical domain. Such assessments have contributed greatly to the testing of goal perspective theory (Ames, 1992a; Dweck, 1986; Nicholls, 1984, 1989) in sport and physical education and have been found to relate to perceptions, values, attitudes, and self-reported behavior in conceptually consistent ways. To date, limited work has been conducted utilizing the measures described in this chapter in the prediction of actual or objective behavioral indices. To further our knowledge of the intricacies and implications of achievement goals and more comprehensively examine the predictions of the goal perspective framework, we conclude this chapter with the proposal of several considerations for subsequent research.

Assessment of Goal States

Questions about the stability of goal orientations over time and over situations have been raised since the introduction of the social cognitive approach to achievement motivation (e.g., Duda & Nicholls, 1992). Just as research on stress has progressed with Spielberger's differentiation between state and trait anxiety (Spielberger, Gorsuch, and Lushene, 1970), so has Nicholls' differentiation between transitory states of task and ego involvement and the dispositional tendencies that underpin them advanced thinking about achievement motivation. However, to date, little has been done with respect to the assessment of goal states in the physical domain.

Single-item measures of situation-specific task and ego involvement have been used by Swain and Harwood (1996) and Harwood and Swain (1996) in an attempt to assess pre-competitive goal states among age-group swimmers and tennis players. These items asked how important a particular outcome was to the competitors one hour before competition and they responded on a 7-point Likert scale anchored by *Not at all important* and *Extremely important*. The task-involvement item (state task goal) developed for swimming was "To what extent is achieving a good personal time, regardless of where you finish, important to you in this next race?" whereas the ego-involvement item (state ego goal) was "To what extent is beating other swimmers, regardless of what time you achieve, important to you in this next race?" The correlation between these items was low (r = -.05). Single- item measures of "race" task and ego orientations (termed trait goals) were also generated and their associations with swimming-specific TEOSQ task and ego orientation scales was also low (r = .17 and .21, respectively).

Swain and Harwood (1996) also used a measure of state goal preference to identify which goal state should dominate when both goals were rated important; that is, subjects responded to the item "What is more important to you in this next race, beating the swimmers in the race or swimming a good personal time?" Responses were indicated on a continuum with a neutral point to accomodate subjects who are high or low in both orientations. Correlations between the assessment of state goal preference and the independent state goals were moderate (r = .43, -.47) suggesting that the item provided additional information than would be inferred from the two goal state measures.

Within their situational measures, Swain and Harwood (1996) identified a factor focused on the perceived state goal preference of significant others, including coaches, parents, and peers. One item was "To impress your clubmates and other swimmers, which do you think is more important, to beat other swimmers and win the race , regardless of the time you swim, or to swim a very good time, regardless of where you finish?"

The items were developed and pilot tested in interviews with swimmers. They were administered in event-specific questionnaires that also tapped short-term situational variables in order to examine the relative influence of dispositional and context-induced goal perspectives on goal states. Swain and Harwood's results suggested that the major predictors of task and ego goal states were short-term situational factors and dispositional tendencies measured by single race-specific items. This study is important, not only for its attempt to measure state goal perspectives of athletic participants, but also for its recognition that state goals of significant others and the temporary match conditions are important influences on athletes' degree of pre-competition task and ego involvement. We would question, however, whether Swain and Harwood's assessment of goal states truly reflected an immediate concern with demonstrating self-referenced versus normatively-based ability (or an employment of an undifferentiated or differentiated conception of ability before the competition). Rather, the single items generated seem to capture the swimmers' degree of emphasis on

their own performance (as reflected in race time) versus the competitive outcome (as reflected in beating other swimmers). Although the latter goal appears rather ego involved, the former is ambiguous with respect to the state of task involvement.

Other researchers have shown an interest in state goal assessment. For example, Williams (1996) adapted the TEOSQ to measure task and ego involvement, and Hall et al. (1996) changed the stem of the POSQ to obtain runners' perceptions of how they expected to feel in an immediate race.

We would suggest that the assessment of task and ego involvement per se may very well entail the examination of a pattern of variables that represent task and ego processing and preoccupation. This approach would be much more complicated than merely assessing individuals' emphasis on beating others versus improving their own performance *at that point in time*. In our opinion, the measurement of task- and ego-involved goal states would be dynamic and multifaceted. Variations in attentional focus, concerns about what one is doing and how one is doing, the degree of self-/other awareness and task absorption, level of effort exertion, etc., might constitute the constellation of symptoms reflecting task versus ego goal states. Most likely, in contrast to measures of dispositional goal orientations, these task and ego involvement patterns would not be orthogonal. It does not seem possible that one can be truly task involved *and* ego involved at a particular moment. Moreover, we would propose that goal states are qualitatively different from dispositional goal orientations rather than simply a manifestation of those dispositions at one moment of time. Thus, when assessing goal states in sport, attempts to use the same items found on dispositional goal orientation measures (such as the TEOSQ and POSQ) with a mere change of the stem seem suspect (Hall et al., 1996; Williams, 1996).

Moreover, from a measurement standpoint, it would seem desirable for state goals to be validated differently from dispositional measures. For example, Spielberger et al. (1970) selected their state items (assessing state anxiety) from those that gave widely different results in four contrasting anxiety inducing situations. Their trait items, on the other hand, had high retest reliability across environments. Potential state goal items could similarly be tested in task and ego involving conditions of varying intensity to determine their sensitivity to change.

Other Goal Orientations

Maehr and Nicholls (1980) originally proposed multiple subjective definitions of success and included social approval as one of their universal goal orientations. The redefinition of goal perspectives by Nicholls (1984) as reflective of differences in the conceptions of ability evoked rather than as definitions of success changed the focus of research to the measurement of task and ego goals. However, it is unlikely that these two goals will explain all the variance in achievement situations. Urdan and Maehr (1995) have argued for the examination of a subset of social goals that should be relevant to variability in achievement striving. They propose that there are a number of possible social goals including social approval goals (in which the aim is to gain approval from others such as parents, teachers, and peers), social solidarity goals (reflecting a focus on bringing honor to one's group), and social affiliation goals (which emphasize making/retaining friends).

With a particular focus on the athletic context, Duda and colleagues (e.g., Duda & Nicholls, 1992) have identified and examined the correlates of a cooperation goal. This goal dimension was also investigated by Ames and colleagues (1984, 1992a) from a situational goal approach when they explored the impact of individualistic, competitive, and cooperative goal structures.

In research centered on the identification and measurement of other goal orientations that are salient to particular subgroups of sport participants, Gano-Overway and Duda (1996) found evidence in support of an Expressive Individualism goal perspective in the case of Anglo-American and, in particular, African-American high school track and field athletes. The 10-item expressive individualism scale we developed was factor analyzed, and two dimensions resulted. The first comprised items that reflected an emphasis on being creative and original in one's performance (e.g., "I feel successful in sport when my style is unique," "I feel successful in sport when I can express myself while performing"). The second factor contained items that indicated a concern with expressing a unique image of oneself through one's appearance (e.g., "I feel successful in sport when I can be creative in my dress," "I feel successful in sport when I can express myself in what I wear"). The first factor accounted for a greater amount of the variance than the second factor (41.9% versus 13.6%, respectively) and was found to be more internally consistent (alphas = .69 and .84, respectively). Our results also showed that, in the case of the African-American and Anglo-American athletes, the first dimension of Expressive Individualism reflects both a task and ego goal emphasis (i.e., a second-order factor analysis revealed that this scale cross-loaded on both the task and ego orientation dimensions). The appearance facet of Expressive Individualism, however, was linked to ego orientation only.

Conceptions of Failure

Instruments assessing task and ego goals have focused on conceptions of ability tied to success, but a thorough understanding of achievement motivation entails that we also are aware of the determinants and repercussions of subjective failure experiences. Preliminary evidence suggests that there may be an asymmetry in success and failure perceptions. For example, Ewing (1981) administered a questionnaire assessing the antecedents and consequences of success and failure and showed that male and female adolescents perceive these constructs quite differently. Utilizing open-ended assessments, within-subject and group discrepancies in subjective definitions of success and failure have also been reported by Duda (1986) and Whitehead (1993b).

Qualitative and Quantitative Assessment

Qualitative assessment can provide a richer source of data and more sensitive indicators of individual differences in dispositional and perceived situational goal perspectives than is furnished by classic psychometric techniques that are concerned with quantitative generalizations. Neither qualitative nor quantitative analyses supersede the other as they provide comple-

mentary information. A perusal of the literature on goal perspectives in the physical domain indicates, however, that there has been a tendency to rely too heavily on the latter. The few studies that have employed qualitative methods include work by Hayashi (1996), Harwood, Swain, and Thorpe (1996) and Thorne and Duda (1995).

In a semistructured interview, Hayashi (1996) examined subjective definitions of success among Anglo-American and Hawaiian males who participated in weight lifting. He found that "all participants defined positive and negative experiences in physical activity and weight training based on task and ego orientations" (p. 202). For both groups though, successful and unsuccessful experiences also marked an "interdependent perspective of the self" that related to meeting others' expectations and affiliative concerns. Further, the Hawaiian men also defined success in regard to the "proliferation of pride and harmony within an in-group."

During the interviews, Hayashi (1996) also examined subjective perceptions of the goal/reward structure or motivational climate operating in the weight room. According to this researcher, "all Anglo-Americans and Hawaiians (defined) the weight room climate based on individualistic, competitive, and cooperative goal/reward structures" (p. 206). However, an interdependent perspective, which emphasized being part of the group and not standing out, was perceived to be part of the weight room environment among the Hawaiian respondents.

Harwood et al. (1996) recently used qualitative methodology to investigate the motivational criteria that have both developed and situationally induced achievement goal perspectives among 17 elite tennis players. Four general dimensions emerged from the inductive content analysis that captured the major motivational criteria impacting on "players' personal theories of achievement in general and within current situations." These were cognitive-developmental skills and experiences, the motivational climate conveyed by significant others, structural and social nature of the game, and match context. Development of an ego-involved/oriented approach to tennis in general and in competitive matches was reflected by such higher order themes as "outcome-based match evaluation by the coach" and "social consequences of match outcomes." In contrast, a task-involved goal perspective was linked to such themes as "coach directed performance review and assessment," "performance-related attitudes from peers and professionals," and "early task-oriented coaching behavior." Such work provides further insight into the complexity and nature of task and ego goals. This type of research also suggests ways in which we can improve available quantitative measures of dispositional and situationally induced goal perspectives in sport settings.

Employing an idiographic analysis, Thorne and Duda (1995) examined the motivation-related correlates of goal orientations in sport. This work illustrates the use of qualitative methods to test the generality of theoretical findings (from the group case to the individual case) and examine the adequacy of our measures. Ninety-four youth ice hockey players were administered the TEOSQ, and 28 were then classified in one of four groups, that is, high task/high ego, high task/low ego, low task/high ego, or low task/low ego, in terms of their dispositional goal perspectives. In an attempt to replicate previous nomothetic-based findings, the players' beliefs about the causes of success and views about the functions of sport involvement were determined. When compared with previously established group-based results, consistencies and differences were observed.

Scale Norms

The findings from most studies over-viewed in this chapter show means to be higher for task in contrast to ego assessments of goal orientations and/or the perceived climate in the physical domain. It may, therefore, be quite normal for a sample to be significantly higher in task than ego orientations or perceptions of the situationally emphasized goals. Norms for all available goal perspective scales would allow researchers to determine whether the data from a particular sample are unusually high or low.

Another reason for developing test norms is that the orthogonality of the task and ego scales has led researchers to explore goal profiles using mean or median splits (e.g., Fox, Goudas, Biddle, Duda & Armstrong, 1994). These goal profiles, however, have been sample specific so a score that may be considered high in one sample is low in another one, and this makes comparision across different studies particularly difficult if not questionable. Clearly norms are necessary to facilitate quadrant selection in the formation of goal perspective profiles. However, the construction of such norms requires not only the collection of a large amount of data, but also the careful categorization of subjects by such variables as age, gender, and competitive level.

To date, sufficient work has been done with the TEOSQ to allow for the generation of such norms (based on those studies in which researchers subdivided their samples based on age, gender, and competitive level). More research on perceptions of the motivational climate in the physical domain will facilitate the development of norms related to this variable.

In Search of Conceptual Clarity and Consistency: A Final Word

In his overviews of the state of measurement in sport psychology, Schutz (Schutz, 1994; Schutz & Gessaroli, 1993) identified a number of pervasive problems. An especially pertinent concern centered on the formation and definition of constructs in the field. Schutz suggested that there are too many instances when the constructs assessed are not conceptually based, clearly defined, and/or operationalized in a way that is consonant with the conceptual definition. We would also add that difficulties arise when researchers do not distinguish between the construct to be measured and its likely correlates.

Throughout this chapter, we have attempted to point out a number of instances where the measurement of goal perspectives suffers from at least some of these maladies. We concur with Marsh (1994) who, with specific reference to achievement goals, emphasized the need to be cognizant of "jingle (scales with the same label reflect the same construct) and jangle (scales with different labels measure different constructs) fallacies, and pursue construct validity studies more vigorously to test the interpretations of measures" (p. 365). We hope the information presented and ideas discussed within this contribution will en-

courage forthcoming research on goal perspectives in the physical domain, work that entails careful, consistent, and creative assessments of goal orientations, situational goals, and goal states as well as a clear distinction between these constructs.

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